2.

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

No. ~~333.~~ 136 133

BENONI E. GARDNER, APPELLANT,

vs.

THE GOODYEAR DENTAL VULCANITE COMPANY ET AL.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF RHODE ISLAND.

FILED DECEMBER 6, 1870.

Nov aug 7 1871

Dec. 15 1871

SUPREME COURT OF THE UNITED STATES.

No. 333.

BENONI E. GARDNER, APPELLANT,

vs.

THE GOODYEAR DENTAL VULCANITE COMPANY ET AL.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF RHODE ISLAND.

INDEX.

	Original.	Print.
Bill in equity	2	1
Answer	12	7
Replication	25	15
Stipulation, No. 1	26	15
Stipulation, No. 2	27	15
Testimony for complainant:		
Original patent of John A. Cummings	29	16
First reissue of Cummings' patent	32	18
Second reissue of Cummings' patent	36	20
Complainant's title	40	23
Deposition of John B. Newbrough	48	27
Deposition of Aaron Lewinburg	56	31
Caveat of John A. Cummings	58	33
File wrapper and contents of Cummings' original application	59	33
File wrapper and contents of Robert Haering's application	94	54
Haering patent	117	67
Stipulation, No. 3	120	68
Articles of Association of Dental Vulcanite Company	120	68
Testimony for defendant:		
Deposition of Parmley	124	69
H. A. Luther	125	70
J. B. Wheat	128	71
A. McIlroy	131	74
M. Schweitzer	134	75
G. P. Miles	136	76
Robert Haering	139	78
Robert Haering, (affidavit)	149	84

	Original.	Print.
Testimony for defendant—*Continued:*		
Deposition of A. G. Haering	152	86
G. W. Homan	164	92
C. Haering	169	96
Truman patent	174	98
Newbrough patent, No. 85927	180	100
Hancock patent, 1843	184	104
Hancock patent, 1846	199	109
Extract from Patent Office reports, 1847	216	118
Compte rendu de séance de l'academie	218	119
American Journal Dental Science	223	121
Harris Dictionary	224	121
Newburg and Fagan patent, No. 70250	225	121
Stipulation, No. 4	228*a*	123
Exhibits	229*a*	123
Deposition of W. Ball	228	128
N. C. Keep	233	131
R. Cutler	241	131
I. A. Salmon	248	141
I. J. Weatherbee	255	144
E. G. Leach	263	150
F. P. Miller	266	152
W. P. Leavitt	274	156
D. S. Bartlett	279	159
J. W. Bartlett	285	163
A. Lawrence	288	165
Agreements of Bevin and Ball	291	166
Agreements of Bevin, Salmon and Whitney	293	168
Extract from American Journal Dental Science	294	168
Deposition of S. Mallett	298	170
A. B. Smith	305	175
R. McGonegal	306	175
W. A. Bevin	312	179
W. A. Bevin, with exhibits	325	187
A. B. Smith	347	201
H. B. Goodyear	347	201
W. C. De Forest	353	205
C. Goodyear, jr	355	206
I. A. Salmon	356	207
G. H. Flagg	358	208
S. C. Hurd	376	220
W. L. McDonald	379	222
E. D. Tucker	382	223
S. Gavett	383	224
S. D. Martin	389	227
J. Bacon	391	229
J. Bacon, with exhibits	407	239
C. A. Walker	423	248
D. Thayer	425	250
G. H. P. Flagg	428	251
S. Gavett	430	253
S. Bacon	431	253
Letter from Commissioner of Patents	432	254
Letter of T. W. Evans	433	255

	Original.	Print.
Testimony in rebuttal for complainant:		
Deposition of G. H. P. Flagg	440	258
F. M. Cummings	449	262
D. W. Ropes	455	265
C. Goodyear, jr.	458	267
J. Bacon	461	268
J. Bacon with exhibits	467	271
Additional testimony for defendant:		
Deposition of R. Haering	471	273
Additional testimony for complainant:		
Deposition of J. E. Paine	474	275
Deposition of G. L. Ford	476	276
Decree referring cause to master	478	276
Master's report	480	277
Final decree	481	277
Motion and order for appeal	482	277
Bond on appeal	483	277
Certificate of clerk	486	278

Vulcanite Company, after such assignment to them, surrendered their aforesaid patent, according to law, on account of a defective specification; and a new patent was duly issued to them on the tenth day of January, 1865, for the same invention, in accordance with their corrected description and specification, whereby was granted and secured to the said Dental Vulcanite Company and their successors and assigns, for the full term of seventeen years from the said seventh day of June, 1864, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvements therein described and claimed, and hard-rubber plates embracing the same, as in and by said reissued letters-patent, or a certified copy thereof, here in court to be produced, will more fully appear.

And your orators further show unto your honors that afterwards, to wit, on the twenty-first day of March, 1865, these last-named letters-patent were, according to law, surrendered by the said Dental Vulcanite Company, and cancelled on account of defects still discovered in the specification, and a new patent was duly issued bearing said last-named date, in accordance with their corrected description and specification, and for the same improvements, whereby was granted and secured to the said Dental Vulcanite Company and their successors and assigns, for the full term of seventeen years from the said seventh day of June, 1864, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvements therein specified and claimed and hard-rubber plates embracing the same, as in and by said second reissued patent, or a certified copy thereof, here in court to be produced, will more fully appear.

4

And your orators further show that, on the seventeenth day of July, A. D. 1866, the said Dental Vulcanite Company, by a certain deed of assignment of that date, here in court to be produced, did sell and assign to your orator, Josiah Bacon, of Brookline, Massachusetts, therein described as of Boston, Massachusetts, the said letters-patent and all the rights thereby vested, together with the right to sue for and collect to his own use all damages for past infringements thereon, and that said assignment was made in trust for certain persons then associated together with intent to form the corporation which is your orator in this bill, and in contemplation of the formation of such corporation, and that such persons associates did afterwards form and are now members of such corporation.

And your orators further show unto your honors that your orator, the said Bacon, on or about the seventh day of January, 1868, by his deed of that date, here in court to be produced, in pursuance of said trust assigned to your orators, the said Goodyear Dental Vulcanite Company, the said letters-patent, and all rights and privileges under the same, and also the right to demand, sue for, and collect to their own use all damages at law and profits in equity for past infringements of said letters-patent; but your orators, the said Goodyear Dental Vulcanite Company, submit that they are entitled in equity to recover such profits by reason of the said Bacon's holding of said patent having been in trust as aforesaid, as well as because they are assignees of all said Bacon's right to recover such profits.

5

And your orators further show unto your honors that the said Cummings, his mesne assignees, and your orators have always, since the grant of the said letters-patent, and during the time they each owned the same respectively, and in the exercise of the full and exclusive right and liberty so granted as aforesaid, made, used, and vended to others to be used, the said improvement so patented, and have had and maintained,

until the infringement hereafter complained of, exclusive possession of the said improvement and invention, under and by virtue of said letters-patent, and have never acquiesced in any invasion or infringement of their said rights.

And your orators further show unto your honors that, since the date of the said letters-patent, about three thousand dentists within the limits of the United States have submitted to the claims of your orators and their assignors under said letters-patent, and have taken licenses to use the said improvement under the same.

And your orators further show unto your honors that, while the said Dental Vulcanite Company was owner of said patent as aforesaid, one Isaac J. Wetherbee of Boston, infringed upon the same, whereupon the said Dental Vulcanite Company filed their bill of complaint against said Wetherbee on the twenty-fifth day of October, 1864, returnable to the circuit court for the district of Massachusetts, praying for an injunction and other relief in equity against said Wetherbee; to which bill of complaint the said Wetherbee filed his answer, denying the validity of said letters-patent, and alleging, among other defences, that said Cummings was not the original and first inventor thereof, and setting up that many other persons both in Europe and in the United States, used and practised said invention before said Cummings' alleged invention. Whereupon such proceedings were had, that evidence was taken by both parties upon all the points at issue, and the case was fully heard and argued

6 before the Honorable Nathan Clifford, justice of said circuit court and he thereupon, to wit, at the May term, 1866, of said circuit court, delivered his opinion upon all the points at issue, and ordered judgment and a final decree in favor of the complainants, and a perpetual injunction to be issued against said Wetherbee, enjoining him from infringing on said letters-patent.

And your orator further shows unto your honors, that the particular kind of hard rubber which has been used by the said Wetherbee in practising his said infringement, was that which is described in and the subject of letters-patent granted to Henry B. Goodyear, as administrator of Nelson Goodyear, May 18, 1858, reissues of letters-patent granted to Nelson Goodyear, May 6th, 1851, being the kind of hard rubber which, in the said last reissue of the Cummings patent, is mentioned as the kind which is preferred to be used in practising his, said Cumming's invention; that since the proceedings against said Wetherbee, various compounds of hard rubber or vulcanite, have been made by other persons claiming or pretending that the same contained, by the admixture of other ingredients, a proportion of sulphur to rubber either greater or less than the proportion described in the said Goodyear's reissues patents.

And that for such compounds patents of the United States have been procured, to wit, of Edwin L. Simpson, numbered 58,901, of Newbrough & Fagan, numbered 70,250, 73,545, 73,916, 73,917, and of William Mullee, bearing date March 31st, 1868; that, on or about March 13th, 1868, a suit in equity was instituted in the circuit court of the United States for the southern district of New York, against one George Evans, a dentist, by your orators, The Goodyear Dental Vulcanite Company, for infringement of the said Goodyear patents; the said infringment consisting in the manufacture of dental plates in accordance with the said Edwin L. Simpson patent, in which suit a motion for interlocutory injunction was heard on the complainants' bill and affidavits and upon affidauits filed by said Evans.

And after an argument of said motion by counsel on either side, his honor, Mr. Justice Blatchford, sitting as associate justice of said circuit court, decreed the said manufacture of plates of the Simp-
7 son rubber to be an infringement of the said Goodyear patents, and granted the said interlocutory injunction as then and there prayed for; that like decretal orders were obtained by the said Goodyear Dental Vulcanite Company, for a like infringement against L. J. Kuechler and others, in the United States circuit court, for the western district of Pennsylvania, and against L. D. Maier, W. P. Welch, and others, in the United States circuit court for the district of Maryland; that on or about March 20, 1868, a suit in equity was instituted in the circuit court of the United States for the western district of Pennsylvania, against Charles Sill and Milton E. Gillespie, dentists, by the said Goodyear Dental Vulcanite Company, the said infringement consisting in the manufacture of dental plates of the compound made in accordance with the said Newbrough and Fagan patents, in which suit a motion for interlocutory injunction was heard on the complainants' bill and affidavits, and upon affidavits filed by the said defendants.

And after argument of said motion by counsel on either side, his honor, Mr. Justice McCandles, sitting as associate justice of said circuit court, decided the said manufacture of plates of the said Newbrough and Fagan rubber (known as the "iodized rubber,") to be an infringement of the said Goodyear patents, and granted the said interlocutory injunction as then and there prayed for.

And your orators further show unto your honors that, on or about the day of , a suit was instituted in the United States circuit court for the eastern district of Pennsylvania, against William Mullee, J. H. McLellan, H. M. Hover, Garrett Mullee, and Claud Robinson, who relied upon the patent granted to William Mullee, dated March 31, 1868, for a process of making hard rubber, and showed by affidavits that they used a larger proportion of sulphur to the rubber than Nelson Goodyear had done. And on or about the 25th day of May, 1868, a motion for preliminary injunction on complainants' bill and affidavits, and affidavits on the part of the defendants, and the case having been argued at great length by George Harding, for complainants, and Fur-
8 man Sheppard and M. Henckle, for defendants, his honor, Justice Grier, decided that the said Mullee patent is an infringement of said reissued letters-patent numbered 556 and 557, and ordered an injunction to issue as prayed for.

And your orators further show unto your honors that the respondent herein, having full knowledge of the premises, and in violation of your orators' exclusive right and privilege as aforesaid, and utterly disregarding the same, has, since the said 17th day of July, 1866, and before and since the said assignment of said letters-patent to your orators, the Goodyear Dental Vulcanite Company, without the license of your orators, at Providence, Rhode Island, and at various other places in the United States, manufactured, used, and sold, and still continues to manufacture, use, and sell many artificial gums and palates, embracing the improvement and invention described in said letters-patent, and so secured to your orators, how many, your orators are unable to say, but pray that the respondent may discover and set forth in his answer to this bill.

And your orators further show unto your orators that they will be subject to great and irreparable injury, unless they shall obtain from your honors the relief hereby sought.

To the end, therefore, that the said respondent may, upon his corporal oath, full, true, direct, and perfect answer make to all and singular the matters hereinbefore stated and charged, as fully and particularly as if the same were hereinafter repeated, and he thereunto distinctly interrogated, according to the best of his knowledge, information, and belief, and more especially that he may answer and set forth—

1st. Whether he has not manufactured since said seventeenth day of July, 1866, and before and since said seventh day of January, 1868, large numbers of artificial gums and palates, made wholly or partly of hard rubber or vulcanite, and how many.

2d. Whether he has not now on hand a large quantity, and how much, gum or rubber prepared to be manufactured into plates or gums of hard rubber or vulcanite.

9 3d. Whether he has not now on hand many, and how many, plates or gums, made wholly or partly of hard rubber or vulcanite.

And that the said respondent may answer the premises, and may be decreed to account for and pay over to your orators all such gains and profits as have accrued to him from his said infringement by making and selling such artificial gums and palates, and that he may be restrained by an injunction issuing out of this honorable court, from making, using, or vending to others to be used, any artificial gums or palates embracing the improvement so secured to your orators as aforesaid, and that the said rubber or vulcanite, and the artificial gums or palates so manufactured by him of said rubber or vulcanite, and now in possession of said respondent, may be destroyed or delivered up to your orators, and for such other and further relief as the nature of the case may require, and to your honors may seem meet.

May it please your honors to grant unto your orators not only a writ of injunction comformable to the prayer of this bill, but also the writ of subpœna, directed to said Benoni E. Gardner, commanding him to appear and answer to this bill of complaint, and to do and receive what to your honors shall seem meet. And your orators will ever pray.

Goodyear Dental Vulcanite Co.,
By its treasurer, JOSIAH BACON.
JOSIAH BACON.

CAUSTEN BROWN,
Solicitor and of Counsel for Complainants.

UNITED STATES OF AMERICA,
District of Massachusetts, ss:

At Boston, in the county of Suffolk, in said district, this 17th day of July, A. D. 1864, personally appeared Josiah Bacon, who signs the foregoing bill, and made oath that he has read the same, and under-

10 stands the same and the contents thereof; and that all the matters therein stated as of the knowledge of the complainants, are to his knowledge true, and as to other matters therein stated, he verily believes them to be true.

Before me,
[L. S.] N. AUSTIN PARKS,
Notary Public.

Subpœna.

RHODE ISLAND DISTRICT, *sc.:*

[L. S.] The President of the United States of America to Benoni E. Gardner, of the city of Providence, State of Rhode Island greeting:

For certain causes offered to our circuit court for the first circuit within and for the Rhode Island district, in chancery, we hereby command and strictly enjoin you, and each of you, that laying aside all other matters and things, and notwithstanding any other excuse, you and each of you, personally appear at the clerk's office of said court, in Providence, on Monday, the second day of November next, being the rule day of said court, and then and there full, true, and perfect answer make upon your several corporal oaths to the bill of complaint of The Goodyear Dental Vulcanite Company, a corporation established by law of the State of New York, and Josiah Bacon, of Brookline, Massachusetts, now filed of record in the clerk's office of said court, and to do and receive whatever our said court shall order against you in the premises in this behalf; and hereof fail not under the pains and penalties that may accrue in consequence of neglect thereof.

And the marshal of said Rhode Island district or his deputy is hereby commanded to make service of this writ by reading the same to the said Benoni E. Gardner, or by leaving a true and attested
11 copy hereof at their several last and usual places of abode twenty days before the rule day aforesaid.

Witness the Hon. Salmon P. Chase, our Chief Justice, at Providence, this 16th day of September, A. D. 1868.

HENRY PITMAN, *Clerk.*

MEMO.—The appearance of the respondents in the suit is to be entered in the clerk's office on or before the return day of this writ; otherwise the bill may be taken pro confesso as against those not appearing.

DISTRICT OF RHODE ISLAND:

PROVIDENCE, *Sept.* 24, 1868.

I this day summoned the within-named Benoni E. Gardner to appear and answer as directed, by giving him in hand, a true and attested copy hereof.

R. SHERMAN,
U. S. Marshal.

Fees: service, $2 00; copy and travel, 56—$2 56.

Entry of appearance.—Filed Sept. 29, 1868.

Circuit court of the United States, district of Rhode Island.

THE GOODYEAR DENTAL VULCANITE CO.
vs.
BENONI E. GARDNER.

We hereby enter our appearance in the above-entitled case for the defendant.

HAYS & MATTESON,
Solicitors.

12 *Answer.—Filed Dec. 7th*, 1868.

United States circuit court, district of Rhode Island.

THE GOODYEAR DENTAL VULCANITE COMPANY and Josiah Bacon
vs.
BENONI E. GARDNER.

The answer of Benoni E. Gardner to the bill of complaint of the above-named complainant.

This defendant now and at all times hereafter, saving and reserving to himself all and all manner of benefit of exception, which may be had or taken to the manifold errors, uncertainties, imperfections, and insufficiencies in the said bill of complaint contained, for answer thereto, or unto so much thereof as he is advised it is material or necessary for him to make answer unto, answering says:

That he admits, upon information and belief, that letters-patent of the United States were issued to John A. Cummings, bearing date the 7th day of June, 1864, for an alleged improvement in artificial gums and palates, as is stated in said bill of complaint, but this defendant denies that the said John A. Cummings was the original and first inventor of said alleged improvement, or that said improvement had not been in public use or on sale with his consent and allowance for more than two years before his application for a patent, or that said Cummings made application for such patent in due form of law, or that said letters-patent were lawfully issued and delivered to said Cummings, or that he obtained any exclusive right in said improvement by virtue of said letters-patent.

This defendant, further answering, says that he is not informed, except by said bill of complaint, whether said letters-patent afterwards
13 were assigned to the Dental Vulcanite Company, and he requires the complainant to make legal proof of said assignment; but this defendant alleges and insists if said patent was assigned to such company, that it, the said company, was not a corporation legally organized under the laws of the State of Massachusetts, authorized and competent to take and hold said letters-patent.

This defendant, further answering, upon information and belief, admits that said letters-patent, so granted to said Cummings on the 7th day of June, 1864, were surrendered and reissued on the 10th day of January, 1865, and again on the 21st day of March, 1865, but this defendant, on like information and belief, denies that said patent was surrendered and the reissues thereof obtained by the Dental Vulcanite Company, as is alleged in said complaint, and avers that said surrenders were not made, nor said reissues obtained according to law.

This defendant, further answering, upon information and belief, denies that said original patent of June 7, 1864, was surrendered, and the reissue thereof obtained, because said original patent was inoperative or invalid by reason of a defective or insufficient specification, or for any cause or reason for which letters-patent may be surrendered according to, and under the provisions of, the statutes in such cases made and provided; and this defendant further alleges and insists that, if said original patent of June 7, 1864, had been, or were so defective or insufficient, as to be inoperative or invalid, such error, defect, or insufficiency did not arise by or from any inadvertency, accident, or mis-

take, and without any fraudulent intent on the part of said Cummings; and this defendant insists that said surrenders of said patent were not for any sufficient, valid, or lawful cause; and this defendant further alleges that, said reissue of March 21, 1865, is not for the same invention for which the said original letters-patent were granted.

This defendant, further answering, says that he is not informed, except by said bill of complaint, whether the said Dental Vulcanite Company assigned said letters-patent to the complainant Josiah Bacon in this cause in trust, as is alleged in said bill of complaint, and
14 whether the said Josiah Bacon afterwards assigned the same to the said Goodyear Dental Vulcanite Company, as is also alleged, and he requires the complainant to make legal proof thereof, but this defendant alleges and insists, as he is advised and believes, that if said company did assign said letters-patent to said complainant, as is alleged in said bill, and if said complainants are now the pretended holders of said patent under such assignments, that said assignment transferred to said complainants no legal title in or to said letters-patent, for the reason that said Dental Vulcanite Company was not a corporation legally organized under the laws of the State of Massachusetts, and therefore had no power either to take and hold said letters-patent, or to assign and transfer the same, and this defendant therefore insists, in bar of this suit, that said complainants have no right to sue in this court.

This defendant, further answering, upon information and belief, denies that said complainant is the owner and holder of said letters-patent.

This defendant, further answering, denies that the said Cummings and his mesne assignees and said complainant have been, since the grant of said letters patent, in the exercise of the full and exclusive right and liberty thereby granted, and in the exclusive possession of the said invention and improvement.

This defendant, further answering, upon information and belief, admits that some dentists, but how many this defendant is not informed, except by said bill of complaint, have taken licenses under said letters-patent, but this defendant upon like information and belief, avers that said licenses have been, for the most part, taken under threats and false representations made by the agents of the complainant, or his assignors, or some of them, and in order to escape trouble and annoyance, and without any intention of admitting the validity of such patent, or the patentability of its subject-matter, and with strong protests against the claims and pretensions asserted under the same.

This defendant, further answering, upon information and belief admits, as is alleged in said complaint, that a suit was brought by the
15 said Dental Vulcanite Company, in the circuit court of the United States for the district of Massachusetts, against one Isaac J. Wetherbee, for an alleged violation of said letters-patent, and that a decree was obtained therein in favor of said complainant, but this defendant, as he is advised and believes, alleges that the said decree so obtained in said cause was not founded upon correct conclusions of law or of fact, and is not, therefore, conclusive, in any respect, as to the validity of said Cummings' patent; and defendant further says, that the answer to the bill of complaint in this cause sets up not only the defences of some of them interposed in the said action, so tried in the circuit court for the district of Massachusetts, but also other and different defences thereto.

This defendant, further answering, on information and belief, admits

that different compounds of rubber and other materials have been made by various persons, and that patents have been obtained for such compounds by Edmund L. Simpson, and by J. B. Newbrough and E. Fagan, and by William Miller, as is set forth in the bill of complaint in this cause, and that proceedings have been taken in some of the circuit courts of the United States against parties using some of such compounds in the manufacture of dental plates, and that in some of such cases injunctions have been granted restraining the use of some of such compounds; but this defendant further answering on information and belief, says that in all or nearly all of such proceedings no substantial defense touching the merits of such cases was interposed, but that such injunctions were obtained without opposition, and that such injunctions so obtained were not founded upon correct conclusions of law and fact, and are not therefore conclusive in every respect.

This defendant, further answering, says that long before the original patent of the said Cummings, in the bill of complaint mentioned, was issued or applied for, and before any caveat was filed, if any, by the said Cummings, in relation to his alleged invention, dental plates, as a setting for artificial teeth, were made by dentists by compressing gold, silver, or platina, into a mould or die formed from and by means of a cast taken of the jaw or portion of the jaw of the patient, in sub-
16 stantially the same manner as that described in the said reissued patent of the said Cummings, excepting that such metal did not require to be hardened by any baking or heating process; and that prior to the application of the said Cummings for his said patent, or to the filing by him of any caveat in relation to his said alleged invention, it was well known to dentists and other persons, that India-rubber and sulphur when mixed in certain proportions could be compressed in a plastic state into moulds, and could then be baked or hardened by heating such moulds, and also that such plastic material could be colored before being baked or hardened, and that in respect to the compressing of India-rubber and sulphur in a plastic state in moulds, and the hardening such substance while compressed in such moulds, and the coloring the same before hardening, neither the original patent of the said Cummings, nor either of the reissues thereof, taught anything new; and that the said original and reissued patents embrace, as the subject of the alleged invention, nothing but the application of a material, not of itself invented by him, said Cummings, to the manufacture of an old and well-known article, and that such application, even if first made by the said Cummings, which, however, this defendant denies, cannot be the subject of valid letters-patent, and that, therefore, the said original patent was, and the said reissued patent of March 25th, 1865, is, void.

This defendant, further answering, says that if such application of such material, to wit, hard rubber, or "vulcanite," so-called, to the making of plates for setting artificial teeth could of itself be the subject of valid letters-patent, the said Cummings was not the original and first inventor thereof, or of any improvement described and claimed in his said original patent or the reissues thereof, but the same, prior to any alleged invention thereof by said Cummings, was known to and practised by divers persons, and among others:

To F. A. Bevin, formerly residing in Boston, Massachusetts, but now deceased, and who had knowledge of the same at New Haven, Connecticut;

17 To Charles S. Putnam, formerly residing in New York City, but now deceased, and who had knowledge of the same in said city;

To Samuel Mallett, now residing in New Haven, Connecticut, and who had knowledge of the same at said New Haven;

To Nathan C. Keep, now residing in Boston, Massachusetts, and who had knowledge of the same in said Boston;

To Henry Jordan, now residing in Boston, Massachusetts, and who had knowledge of the same at said city of Boston;

To Ira A. Salmon, now residing in said Boston, and who had knowledge of the same at said Boston;

To S. Bartlett, now residing in Roxbury, Massachusetts, and who had knowledge of the same at said Roxbury;

To W'm P. Leavitt, now residing in Dorchester, Massachusetts, and who had knowledge of the same at Boston, Massachusetts;

To Charles S. Carter, now residing in said Boston, and who had knowledge of the same at said Boston;

To W'm D. Brown, now residing in Milwaukie, Wisconsin, and who had knowledge of the same at Boston, Massachusetts;

To Zaccheus Rogers, now residing in Chicago, Illinois, and who had knowledge of the same at New Haven, Connecticut;

To Samuel S. White, now residing at Philadelphia, Pennsylvania, and who had knowledge of the same at said Philadelphia;

To Dr. T. W. Evans, a citizen of the United States of America, now residing at No. 15 Rue de la Paix, Paris, France, and who had knowledge of the same at said Paris;

To Dr. J. B. Wheat, now residing at New York City, and who had knowledge of the same at the city of New Haven;

To Robert Arthur, now residing at Baltimore, Maryland, and who had knowledge of the same at Philadelphia, Pennsylvania;

To Stephen A. Main, John M. Crowell, George Miles, Kasson A. Brigham, and William H. Dwinielle, all now residing in the city and State of New York, and who had knowledge of the same at said city of New York;

To Robert Haering, now residing in the city of New York, and who had knowledge of the same at the city of New Haven, Connecticut;

18 To George H. Homans, now residing in the city of New Haven, and who had knowledge of the same at said city of New Haven;

To Dr. A. C. Castle, now residing in the city of New York, and who had knowledge of the same in said city of New York.

This defendant, further answering, says, as he is informed and believes, that the said improvement described in said patent, or a substantial or material part thereof had been, anterior to any alleged invention thereof by said Cummings, described in various public works, or printed publications, and among others, in the following:

In the American Journal of Dental Science, October No., 1853, page 79.

In the same journal, July No., page 490.

In the same journal, January No., 1856, pages 16 and 35.

In the same journal, June No., 1856, page , in an article on the use of hard rubber as a base for artificial teeth.

In the same journal, July No., 1856, pages 477–479.

In the same journal, vol. 2, series 2, page 232, in the article "Gutta-percha as a base for artificial teeth."

In the same journal, new series, vol. 4, pages 79 to 93.

In Dinglee's Polytechnic Journal, vol. 122, page 239, describing, or in respect to, Delabarre's artificial gums.

In Harris' Dictionary of Dental Science, page 105, article "Caoutchouc" and Gutta-percha.

In a book printed in London, England, 1863, by the order of the commissioner of patents of Great Britain, entitled "Abridgments of Specifications relating to Medicine, Surgery, Dentistry, A. D. 1632–1861:" page 128, patent of Henry Valentine Bartlett; page 133, patent of Edwin T. Truman; page 152, patent of Ephraim Mosely; page 179, patent of Charles Goodyear, jr.; page 191, patent of Edwin Thomas Truman; page 207, provisional protection of Jean Ninck; page 208, patent of Joseph Maurice; page 236, patent of Bennett Mitchell Belling; page 241, patent of Frederick Louis Lawrence; page 245, patent of James Childs; page 246, provisional protection of Patrick Gregson Cunningham; page 252, patent of Henry Andrew Dewar; page 272, provisional protection of Richard Archibald Brooman; and page 287, provisional protection of Matthew Cartwright.

In a book printed in London, England, 1847, entitled the London Journal of Botany, No. 61, January, 1847, page 32, article "Guttapercha."

In the United States Patent Office Reports for the year 1847, page 21, &c.

In the Official Reports of the exhibition held at London, England, in 1851, vol. 1, page 474*, referring in the list of exhibitors to E. Truman, patent artificial teeth, Class X, No. 720.

In the Official Report of the Juries of the same exhibition, printed in London, page 598, article XXVIII.

And this defendant, further answering, on information and belief, says that the said improvements described in said letters-patent, or substantial and material parts thereof, had been anterior to the supposed discovery thereof by said Cummings for his said patent of June 17, 1864, described and set forth in the following letters-patent:

In the English patent granted to Henry V. Bartlett, dated May 15, 1846, No. 11209, for "Improvements in artificial palates, teeth, and gums, and certain machinery employed in the manufacture thereof."

In the English patent granted to Edwin T. Truman, dated August 15, 1848, No. 12241, for "An improved method or methods of constructing and fixing artificial teeth and gums, and of supplying deficiencies in the mouth."

In letters-patent of the United States, granted to Nelson Goodyear, for "Improvements in the manufacture of India-rubber," dated May 6, 1851, for making hard rubber, and reissued in two parts, May 28, 1858.

In the English patent granted to Ephraim Mosely, dated December 21, 1852, No. 1128, for "Improvements in the manufacture of artificial masticating apparatus."

In the provisional specification filed in an application for an English patent by Bennett Mitchell Belling on the 8th of March, 1859, No. 608, for "Improved apparatus for hardening India-rubber for the bases of teeth."

In the English patent granted to Frederick Louis Lawrence, dated August 9th, 1859, No. 1842, for "Improvements in coloring and hardening elastic gums for dental purposes."

In the English patent granted to James Childs, dated October 8th, 1859, No. 2295, for "Improvements in the manufacture of artificial gums."

In the provisional protection filed in an application for an English patent by Patrick G. Cunningham, on the 11th day of October, 1859, No. 2312, for "Improvements in the construction of artificial teeth and gums."

In the English patent granted to Henry Andrew Dewar, dated January 2d, 1860, No. 4, for "Improvements in moulding or applying India-rubber as the bases of artificial teeth, and in apparatus for the same."

In the provisional specification filed in an application for an English patent by Richard A. Brooman, on the 20th of March, 1861, No. 697, for "Improvements in preparing caoutchouc, adapted especially to dental purposes."

In the English patent granted to Charles Goodyear, jr., dated March 14th, 1855, No. 577, for "Improvements in the plates of artificial teeth."

In the English patent granted to Edwin T. Truman, dated November 1st, 1855, No. 2446, for "Improvements in palates or holders for artificial teeth."

In the provisional specification filed in an application for an English patent by Jean Ninck, on the 20th day of March, 1857, No. 777, for "Improvements in placing sets or partial sets of teeth, gums, and palates on plates."

In the English patent granted to Joseph Maurice, dated April 13th, 1857, No. 1035, for "Certain improvements in the fastenings, fixings, and attachments used for supporting or securing artificial teeth in the mouth."

In the provisional specification filed in an application for an English patent, by Mathew Cartwright, on the 18th day of December, 1861, No. 3169, for "Improvements in the manufacture of beds or palates for the reception of artificial teeth."

21 In the English patent granted to Mathew Cartwright, dated January 2d, 1862, No. 21, for "Improvements in the manufacture of models and of plates or pieces for artificial teeth."

In the English patent granted to Maurice Gabriel and Arnold Gabriel, dated March 1st, 1862, No. 580, for "Bases for artificial teeth."

In the English patent granted to George Davies, dated March 11th, 1862, No. 662, for "Improvements in attaching artificial teeth to plates and to each other, and in moulds for forming artificial teeth."

In the English patent granted to Mathew Cartwright, dated April 16th, 1862, No. 1105, for "Improvements in the manufacture of models and of plates or pieces for artificial teeth, and in combining or amalgamating India-rubber or gutta-percha with metals for the manufacture of artificial plates or pieces and for other purposes."

In the English patent granted to Eugene de Labistida, dated July 2d, 1862, No. 1925, for "A new method of manufacturing India-rubber articles by the simultaneous combination of pressure and vulcanization."

In the English patent granted to James Thom, dated September 12th, 1862, No. 2513, for "Moulding or fitting artificial teeth."

In the English patent granted to James Thom, dated October 14th, 1862, No. 2769, for "Plates for artificial teeth."

In the French patent granted to Charles Morey, dated
1852, No. , for "Vulcanizing India-rubber."

This defendant, further answering, upon information and belief, avers that the alleged improvement patented to said Cummings, as set forth in said bill of complaint, had been in public use or on sale with the consent and allowance of said patentee for more than two years before his application for a patent.

This defendant, further answering, says that the said alleged reissued patent, upon which this action is brought, is void, by reason of a legal abandonment of his original application for a patent by the

said Cummings, and by reason of a want of authority in the
22 Commissioner of Patents to issue the said original patent of June 7, 1864, at the time the same was granted, because the said Cummings filed an application for a patent on his said alleged invention on the 12th day of April, 1855, which application was rejected by the Commissioner of Patents on the 6th day of February, 1856, both for want of novelty and for want of a patentable subject, and the said Cummings took no appeal from such rejection, at the time of such repetition, or at any time thereafter, but acquiesced in said decision; that on the 17th day of January, 1859, the said Cummings attempted to withdraw his specification in his said application so rejected on the 6th day of February, 1856, from the files of the Patent Office, and was informed by the Commissioner of Patents that his case having been finally acted upon, such withdrawal could not be permitted; that said Cummings took no further action or proceeddings in relation to his said application or his said invention, until the 1st day of March, 1864, on which day he, said Cummings, filed a new application for a patent, and a new specification covering and embracing the same alleged invention as that described in his former and rejected application, and on such application of March 1, 1864, the Commissioner of Patents, on the 7th day of June, 1864, granted the said original patent of the said Cummings; that long before the said application of March 1, 1864, the use of hard-rubber or vulcanite, as a material for making plates for artificial teeth, had become generally known and practised throughout the United States, and that whether the said Cummings' application of March 1, 1864, was considered by the Commissioner of Patents, who granted the said original patent, as having been filed in aid of the previously rejected application of April 12, 1855, or was regarded as an independent and subsequent application, the said Commissioner of Patents had no authority of law for granting the said original patent, and the same was granted in violation of the provisions of the statutes in such case made and provided, and in derogation of the rights of the public accruing to them by reason of the omission of the said Cummings, for a period of eight years, to take any appeal or other action in reference to the rejection of his said original application of April 12, 1855.

23 This defendant, further answering, says that the said Cummings, if he ever made his said alleged invention, and if said invention was of such a character and nature as to be the subject of lawful letters-patent, actually abandoned the same to public use prior to the said 1st day of March, 1864.

This defendant, further answering, says that he has made, since the 17th day of July, 1866,

plates or palates for the insertion of artificial teeth, made wholly or partly of India-rubber; but defendant denies that he has made any such plates or palates by any process, of any material, the exclusive right to use which is vested in the complainant by the Cummings' patent; and this defendant further alleges that, if said patent is valid, he, the defendant, has not infringed the same, unless such patent is held good for a plate made of hard rubber by any process, in lieu of gold, silver, or platina previously in use, which defendant denies.

This defendant, further answering, says that he has on hand about one pound of gum or rubber prepared to be manufactured into dental plates; but defendant denies that said patent vests in the complainant an exclusive right to the possession or use of such material, and denies

In the English patent granted to Henry Andrew Dewar, dated January 2d, 1860, No. 4, for "Improvements in moulding or applying India-rubber as the bases of artificial teeth, and in apparatus for the same."

In the provisional specification filed in an application for an English patent by Richard A. Brooman, on the 20th of March, 1861, No. 697, for "Improvements in preparing caoutchouc, adapted especially to dental purposes."

In the English patent granted to Charles Goodyear, jr., dated March 14th, 1855, No. 577, for "Improvements in the plates of artificial teeth."

In the English patent granted to Edwin T. Truman, dated November 1st, 1855, No. 2446, for "Improvements in palates or holders for artificial teeth."

In the provisional specification filed in an application for an English patent by Jean Ninck, on the 20th day of March, 1857, No. 777, for "Improvements in placing sets or partial sets of teeth, gums, and palates on plates."

In the English patent granted to Joseph Maurice, dated April 13th, 1857, No. 1035, for "Certain improvements in the fastenings, fixings, and attachments used for supporting or securing artificial teeth in the mouth."

In the provisional specification filed in an application for an English patent, by Mathew Cartwright, on the 18th day of December, 1861, No. 3169, for "Improvements in the manufacture of beds or palates for the reception of artificial teeth."

21 In the English patent granted to Mathew Cartwright, dated January 2d, 1862, No. 21, for "Improvements in the manufacture of models and of plates or pieces for artificial teeth."

In the English patent granted to Maurice Gabriel and Arnold Gabriel, dated March 1st, 1862, No. 580, for "Bases for artificial teeth."

In the English patent granted to George Davies, dated March 11th, 1862, No. 662, for "Improvements in attaching artificial teeth to plates and to each other, and in moulds for forming artificial teeth."

In the English patent granted to Mathew Cartwright, dated April 16th, 1862, No. 1105, for "Improvements in the manufacture of models and of plates or pieces for artificial teeth, and in combining or amalgamating India-rubber or gutta-percha with metals for the manufacture of artificial plates or pieces and for other purposes."

In the English patent granted to Eugene de Labistida, dated July 2d, 1862, No. 1925, for "A new method of manufacturing India-rubber articles by the simultaneous combination of pressure and vulcanization."

In the English patent granted to James Thom, dated September 12th, 1862, No. 2513, for "Moulding or fitting artificial teeth."

In the English patent granted to James Thom, dated October 14th, 1862, No. 2769, for "Plates for artificial teeth."

In the French patent granted to Charles Morey, dated 1852, No. , for "Vulcanizing India-rubber."

This defendant, further answering, upon information and belief, avers that the alleged improvement patented to said Cummings, as set forth in said bill of complaint, had been in public use or on sale with the consent and allowance of said patentee for more than two years before his application for a patent.

This defendant, further answering, says that the said alleged reissued patent, upon which this action is brought, is void, by reason of a legal abandonment of his original application for a patent by the

said Cummings, and by reason of a want of authority in the
22 Commissioner of Patents to issue the said original patent of June 7, 1864, at the time the same was granted, because the said Cummings filed an application for a patent on his said alleged invention on the 12th day of April, 1855, which application was rejected by the Commissioner of Patents on the 6th day of February, 1856, both for want of novelty and for want of a patentable subject, and the said Cummings took no appeal from such rejection, at the time of such repetition, or at any time thereafter, but acquiesced in said decision; that on the 17th day of January, 1859, the said Cummings attempted to withdraw his specification in his said application so rejected on the 6th day of February, 1856, from the files of the Patent Office, and was informed by the Commissioner of Patents that his case having been finally acted upon, such withdrawal could not be permitted; that said Cummings took no further action or proceeddings in relation to his said application or his said invention, until the 1st day of March, 1864, on which day he, said Cummings, filed a new application for a patent, and a new specification covering and embracing the same alleged invention as that described in his former and rejected application, and on such application of March 1, 1864, the Commissioner of Patents, on the 7th day of June, 1864, granted the said original patent of the said Cummings; that long before the said application of March 1, 1864, the use of hard-rubber or vulcanite, as a material for making plates for artificial teeth, had become generally known and practised throughout the United States, and that whether the said Cummings' application of March 1, 1864, was considered by the Commissioner of Patents, who granted the said original patent, as having been filed in aid of the previously rejected application of April 12, 1855, or was regarded as an independent and subsequent application, the said Commissioner of Patents had no authority of law for granting the said original patent, and the same was granted in violation of the provisions of the statutes in such case made and provided, and in derogation of the rights of the public accruing to them by reason of the omission of the said Cummings, for a period of eight years, to take any appeal or other action in reference to the rejection of his said original application of April 12, 1855.

23 This defendant, further answering, says that the said Cummings, if he ever made his said alleged invention, and if said invention was of such a character and nature as to be the subject of lawful letters-patent, actually abandoned the same to public use prior to the said 1st day of March, 1864.

This defendant, further answering, says that he has made, since the 17th day of July, 1866,

plates or palates for the insertion of artificial teeth, made wholly or partly of India-rubber; but defendant denies that he has made any such plates or palates by any process, of any material, the exclusive right to use which is vested in the complainant by the Cummings' patent; and this defendant further alleges that, if said patent is valid, he, the defendant, has not infringed the same, unless such patent is held good for a plate made of hard rubber by any process, in lieu of gold, silver, or platina previously in use, which defendant denies.

This defendant, further answering, says that he has on hand about one pound of gum or rubber prepared to be manufactured into dental plates; but defendant denies that said patent vests in the complainant an exclusive right to the possession or use of such material, and denies

the right of said complainant to have, or demand that such gum, or rubber, or palates should be destroyed or delivered up to him.

This defendant, further answering, admits that he has on hand two plates or gums, made wholly or partly of rubber six or seven years ago, and one other made since March 5, 1868; but defendant avers the hardened-rubber plates such as he has made, used, or sold, were not made by any process patented to said Cummings, and defendant denies the right of the complainant to have such plates delivered up or destroyed.

This defendant, further answering, says that the dental plates which have been made by him since the 5th day of March, 1868, have been made under a license given this defendant by John B. Newbrough and Edward Fagan, of the city of New York, and that the material of which said plates have been made is compounded and prepared under
24 and in accordance with letters-patent of the United States, No. 73917, bearing date the 28th day of January, 1868, granted to said Newbrough and Fagan, and that such compound is not prepared as described in the letters-patent granted to Nelson Goodyear May 6th, 1851, and does not contain or employ or make use of four ounces of sulphur, or nearly that quantity to the pound of rubber, but contains only about and less than one and a half ounces of sulphur to the pound of rubber, and that such compound is hardened by the use and action of iodine, and not sulphur, and that such compound, when hardened, is not hard rubber or vulcanite, as described or within the meaning of the said Cummings' patent, and is not such a material or substance as is described in or which is within the said Cummings' patent; but is an entirely different substance or material in its composition, and also requires a different mode or process for converting it into a hardened mass from that described in and made a part of the Cummings' patent.

This defendant, further answering, denies that the said complainant is entitled to the relief, or any part thereof, in his said complaint mentioned.

And this defendant prays the same advantage of the aforesaid answer as if he had pleaded the several matters and things aforesaid to the bill of complaint in this cause.

Without this, that any other matter or thing in said complainant's said bill contained, and not herein and hereby well and sufficiently answered, traversed or denied, confessed or avoided, is true to the knowledge or belief of this defendant.

All of which matters and things this defendant is ready and willing to aver, maintain, and prove, as this honorable court shall direct; and he prays hence to be dismissed, with reasonable costs and charges in this behalf most wrongfully sustained.

BENONI E. GARDNER.

HAYES & MATTESON,
Solicitors for Defendant.

DISTRICT OF RHODE ISLAND:

On this 7th day of December, 1868, before me personally ap-
25 peared Benoni E. Gardner, and made oath that he has read the foregoing answer by him subscribed, and knows the contents thereof, and that the same is true of his own knowledge and belief, except as to the matters which are therein stated on information and belief, and as to those matters he believes it to be true.

HENRY PITMAN,
Clerk United States Circuit Court.

Replication.—Filed April 14th, 1869.

United States circuit court, district of Rhode Island.

GOODYEAR DENTAL VULCANITE CO. ET AL.
vs.
BENONI E. GARDNER. } In equity.

The replication of the Goodyear Dental Vulcanite Company and Josiah Bacon, complainants, to the answer of Benoni E. Gardner, defendant.

These repliants, saving and reserving unto themselves all and all manner of advantage of exception to the manifold errors and insufficiencies of the said answer, for replication thereunto, say that they will aver and maintain and prove their said bill to be true, certain, and sufficient in the law to be answered unto, and that the said answer of the said defendant is uncertain, untrue, and insufficient to be replied unto by this repliant; without this that any other matter or thing in the said answer contained, material or effectual in the law to be replied unto, confessed and avoided, traversed or denied, and not herein and hereby replied unto, confessed, avoided, traversed, or denied, is true. All of which matters and things these repliants are and will be ready to prove, as this honorable court shall direct; and humbly pray as in and by their said bill they have already prayed.

By their solicitor, JABEZ S. HOLMES.

26 *Stipulation No. 1.—Filed Nov. 20, 1869.*

It is stipulated that the evidence taken in the suit of said complainants against J. B. Newbrough for infringement of the Cummings patent, and in the suit of said complainants against said Newbrough to repeal the patent granted to him, as assignee of Robert Haering, and the stipulations entered therein may be referred to and read in evidence on the final hearing of the above-entitled cause, as if taken therein.

CAUSTEN BROWNE,
Sol'r for Compl'ts.
JOHN A. FOSTER,
Sol'r for Def't.

27 *Stipulation No. 2.—Filed Nov. 20, 1860.*

It is hereby stipulated & agreed that this cause may be heard on pleadings & proofs by Mr. Justice Clifford, sitting at chambers at Washington City, & that a decree may be made by him thereon at said city, as if made in Rhode Island.

It is also stipulated & agreed that the process of manufacturing hard rubber plates for artificial teeth, described by J. B. Newbrough in the record of the suit of the compl'ts against him for infringement of the Cummings patent, at pages 61 to 64, (being pages 48 to 51 of this present record,) inclusive, as used by said Newbrough, is the process used by the defendant herein; also, that Schedules A & B of the record in the suit of the compl'ts against said Newbrough for the repeal of the Haering patent, printed at pages 17 to 78, inc., (being pages 58–119 of this present record,) are, respectively, certified copies of the proceedings in the Patent Office on the issuing of letters-patent to John

A. Cummings & John B. Newbrough, assignee of Robert Haering, referred to on page 81 of said record.

CAUSTEN BROWNE, *Sol'r for Compl'ts.*
JOHN A. FOSTER, " " *Def'ts.*

OCT'R 13, 1869.

28 Circuit court of the United States.

TESTIMONY FOR COMPLAINANTS.

THURSDAY, *April 8th*, 1869.

Present, Charles F. Blake, esquire, counsel for complainants; S. D. Law, esquire, and John A. Foster, esquire, counsel for defendants.

Complainants put in evidence the original patent of John A. Cummings, dated the 7th day of June, 1864, with the schedule thereto annexed; the first reissue thereof to the Dental Vulcanite Company, dated 10th day of January, 1865, with the schedule thereto annexed; the second reissue thereof to the Dental Vulcanite Company, dated the 21st of March, 1865, with the schedule thereto annexed; the assignment of Cummings to G. H. P. Flagg and H. D. Osgood, dated the 1st of March, 1864; the assignment of Cummings to Joseph Gavett, dated 16th May, 1864; the assignment of Cummings, Flagg, Osgood, and Gavett to the Dental Vulcanite Company, dated the 30th of July, 1864; and the assignment of the Dental Vulcanite Company to Josiah Bacon, dated the 17th of July, 1866.

The whole of the above exhibits are in one pamphlet, which is marked Complainants' Exhibit A.

Also, the assignment of Josiah Bacon to the Goodyear Dental
29 Vulcanite Company, dated 7th day of January, 1868, and marked Complainants' Exhibit B.

A'journed. New notice to be given.

COMPLAINANTS' EXHIBIT A.

Original patent of John A. Cummings.

The United States of America to all to whom these letters-patent shall come:

Whereas John A. Cummings, of Boston, Massachusetts, has alleged that he has invented a new and useful improvement in artificial gums and palates, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose.

These are therefore to grant, according to law, to the said John A. Cummings, his heirs, administrators, or assigns, for the term of seventeen years from the seventh day of June, one thousand eight hundred and sixty-four, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said John A.

Cummings in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof I have caused these letters to be made
30 patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand at the city of Washington, this seventh day of June, in the year of our Lord one thousand eight hundred and sixty-four, and of the independence of the United States of America the eighty-eighth.

[L. S.]

J. P. USHER,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

D. P. HOLLOWAY,
Commissioner of Patents.

The schedule referred to in these letters-patent and making a part of them.

To all persons to whom these presents shall come:

Be it known that I, John A. Cummings, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful improvements in the manner of forming artificial palates and gums used for inserting artificial teeth, and that the following description, taken in connection with the accompanying drawings, hereinafter referred to forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said invention, by which it may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by letters-patent.

The figures of the accompanying plates of drawings represen' my improvements.

Figure 1 is a front elevation of a set of artificial teeth and plate formed by my improved method;

Figure 2 is a view of the lower side of the plate and teeth;

Figure 3 is a central vertical section of the same.

The method hitherto practiced of attaching artificial teeth to
31 a metallic plate fitting to the roof of the mouth, is attended with many objections and inconveniences, as the plate, being hard and unyielding, naturally hurts the mouth, and in some degree impedes mastication and perfect articulation, while the expense of the metal employed prevents many from availing themselves of the advantages of artificial teeth.

The present invention consists in forming the plate and gums, to which the teeth are attached, of rubber or some other elastic material, so indurated as to be rigid enough for the purposes of mastication, and pliable enough to yield a little to the motions of the mouth, and in one piece, the teeth being imbedded in the elastic material while the said material is in a soft condition, and then baked with the gums and plate, so that the teeth, gums, and plate will be connected, forming, as it were, one piece.

a, *a*, *a*, &c., in the drawings, represent the artificial teeth prepared in the usual manner. The plate and gums, *b b*, are formed in one piece, and of rubber, or of rubber and the compounds commonly employed therewith, or of gutta percha, or, in fact, of any elastic substance which can be reduced to a soft condition and then vulcanized or hardened sufficiently to answer the purpose. The rubber or other material used is first moulded to fit the shape of the mouth, and the gums formed, and,

A. Cummings & John B. Newbrough, assignee of Robert Haering, referred to on page 81 of said record.

CAUSTEN BROWNE, *Sol'r for Compl'ts.*
JOHN A. FOSTER, " " *Def'ts.*

OCT'R 13, 1869.

28 Circuit court of the United States.

TESTIMONY FOR COMPLAINANTS.

THURSDAY, *April 8th*, 1869.

Present, Charles F. Blake, esquire, counsel for complainants; S. D. Law, esquire, and John A. Foster, esquire, counsel for defendants.

Complainants put in evidence the original patent of John A. Cummings, dated the 7th day of June, 1864, with the schedule thereto annexed; the first reissue thereof to the Dental Vulcanite Company, dated 10th day of January, 1865, with the schedule thereto annexed; the second reissue thereof to the Dental Vulcanite Company, dated the 21st of March, 1865, with the schedule thereto annexed; the assignment of Cummings to G. H. P. Flagg and H. D. Osgood, dated the 1st of March, 1864; the assignment of Cummings to Joseph Gavett, dated 16th May, 1864; the assignment of Cummings, Flagg, Osgood, and Gavett to the Dental Vulcanite Company, dated the 30th of July, 1864; and the assignment of the Dental Vulcanite Company to Josiah Bacon, dated the 17th of July, 1866.

The whole of the above exhibits are in one pamphlet, which is marked Complainants' Exhibit A.

Also, the assignment of Josiah Bacon to the Goodyear Dental
29 Vulcanite Company, dated 7th day of January, 1868, and marked Complainants' Exhibit B.

A'journed. New notice to be given.

COMPLAINANTS' EXHIBIT A.

Original patent of John A. Cummings.

The United States of America to all to whom these letters-patent shall come:

Whereas John A. Cummings, of Boston, Massachusetts, has alleged that he has invented a new and useful improvement in artificial gums and palates, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose.

These are therefore to grant, according to law, to the said John A. Cummings, his heirs, administrators, or assigns, for the term of seventeen years from the seventh day of June, one thousand eight hundred and sixty-four, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said John A.

Cummings in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof I have caused these letters to be made
30 patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand at the city of Washington, this seventh day of June, in the year of our Lord one thousand eight hundred and sixty-four, and of the independence of the United States of America the eighty-eighth.

[L. S.]

J. P. USHER,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

D. P. HOLLOWAY,
Commissioner of Patents.

The schedule referred to in these letters-patent and making a part of them.

To all persons to whom these presents shall come:

Be it known that I, John A. Cummings, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful improvements in the manner of forming artificial palates and gums used for inserting artificial teeth, and that the following description, taken in connection with the accompanying drawings, hereinafter referred to forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said invention, by which it may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by letters-patent.

The figures of the accompanying plates of drawings represen' my improvements.

Figure 1 is a front elevation of a set of artificial teeth and plate formed by my improved method;

Figure 2 is a view of the lower side of the plate and teeth;

Figure 3 is a central vertical section of the same.

The method hitherto practiced of attaching artificial teeth to
31 a metallic plate fitting to the roof of the mouth, is attended with many objections and inconveniences, as the plate, being hard and unyielding, naturally hurts the mouth, and in some degree impedes mastication and perfect articulation, while the expense of the metal employed prevents many from availing themselves of the advantages of artificial teeth.

The present invention consists in forming the plate and gums, to which the teeth are attached, of rubber or some other elastic material, so indurated as to be rigid enough for the purposes of mastication, and pliable enough to yield a little to the motions of the mouth, and in one piece, the teeth being imbedded in the elastic material while the said material is in a soft condition, and then baked with the gums and plate, so that the teeth, gums, and plate will be connected, forming, as it were, one piece.

a, *a*, *a*, &c., in the drawings, represent the artificial teeth prepared in the usual manner. The plate and gums, *b b*, are formed in one piece, and of rubber, or of rubber and the compounds commonly employed therewith, or of gutta percha, or, in fact, of any elastic substance which can be reduced to a soft condition and then vulcanized or hardened sufficiently to answer the purpose. The rubber or other material used is first moulded to fit the shape of the mouth, and the gums formed, and,

while soft and pliable, the teeth, *a*, *a*, are imbedded in the gums, and, as an additional security, fastened to the same by small pins, *c*, *c*, Fig. 3. The teeth, gums, and plate, being thus connected, are then baked until the elastic material becomes sufficiently vulcanized, when the process is completed, the plate being hard and rigid enough for the purpose of mastication, and yet, by its elastic nature, yielding to the motions of the mouth, while the teeth are firmly imbedded and secured in the gums.

The plate and gums can be colored in any proper manner to imitate nature.

Having thus described my improvements, I shall state my claim as follows:

What I claim as my invention, and desire to have secured to me by letters-patent, is—

Forming the plate and gums, in which the teeth are inserted,
32 in one piece of hard rubber or vulcanite, i. e., an elastic material which can be hardened sufficiently for the purposes of mastication, and retain a portion of its elasticity, so as to yield a little to the motion of the mouth, as herein set forth, and for the purposes specified.

JOHN A. CUMMINGS.

A. POLLOCK,
J. L. COMBS,
Witnesses.

First reissue to Dental Vulcanite Co.

The United States of America to all to whom these letters-patent shall come:

Whereas John A. Cummings, of Boston, Massachusetts, (he having assigned his right, title, and interest in said improvement to the Dental Vulcanite Company, of the same place,) has alleged that he has invented a new and useful improvement in artificial gums and palate, (for which letters-patent were issued to him, dated June 7, 1864, which letters having been surrendered by him, the same have been cancelled and new letters ordered to issue to said Dental Vulcanite Company, on an amended specification,) which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement; and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in said improvement, and praying that a patent may be granted for that purpose.

These are therefore to grant, according to law, to the said Dental Vulcanite Company, their successors or assigns, for the term of seventeen years from the seventh day of June, one thousand eight
33 hundred and sixty-four, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said John A. Cummings, in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand at the city of Washington, this tenth day of January, in the year of our Lord one thousand eight hundred and sixty-

five, and of the independence of the United States of America the eighty-ninth.

[L. S.]

J. P. USHER,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

D. P. HOLLOWAY,
Commissioner of Patents.

The schedule referred to in these letters-patent, and making part of the same.

To all persons to whom these presents shall come:

Be it known that I, John A. Cummings, of Boston, in the county of Suffolk, and State of Massachusetts. have invented certain new and useful improvements in plates for artificial teeth; and that the following description, taken in connection with the accompanying plate of drawings hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from all others of a similar class, together with such parts as I claim and desire to have secured to me by letters-patent.

The method hitherto practiced, of attaching artificial teeth to a metallic plate fitting to the roof of the mouth, is attended with many objections and inconveniences, as the plate, being hard and unyielding, naturally hurts the mouth, and, in some degree, impedes mastication and
34 perfect articulation, while the expense of the metal employed prevents many from availing themselves of the advantage of artificial teeth.

My present invention consists in forming the plate to which teeth or teeth and gums are attached, of hard rubber or "vulcanite," so called, an elastic material possessing and retaining in use sufficient rigidity for the purpose of mastication, and, at the same time, being pliable enough to yield a little to the motions of the mouth.

My manner of making and using said hard-rubber plates is as follows: A wax or plastic impression of that part of the mouth which the plate is to fit is first taken, and from that impression a plaster cast is made which will exactly represent that part of the mouth from which the first impression was taken. A plate of wax of the general form of the intended rubber plate is then made from this plaster cast, and around the front of this wax plate a vertical ridge of wax is fixed, about in the position which the teeth are to occupy, in the same manner as is generally practiced in the construction of gold plates for artificial teeth. A plaster mould is then made from this wax plate, fitting it both on the upper and under side, which plaster mould is known generally as the articulator, and is constructed so as to hold the wax plate securely and conveniently for manipulation, leaving the front edge, where the teeth are to be applied, exposed and accessible. The figures of the accompanying plate of drawings represent my improvements.

Figure 1 is a front elevation of a set of artificial teeth and plate, formed by my improved method;

Figure 2 is a view of the lower side of the plate and teeth;

Figure 3 is a central, vertical section of the same.

The teeth shown in the drawings are gum teeth, so called, that is, having porcelain gums formed in one piece with the teeth, and properly colored, and they are shown each one separate; but they may be with-

out porcelain gums, in which case the palate and gums will be formed in one piece of hard rubber, and if gum teeth, they may be formed in groups of two or more, as desired. My mode of operation is the same whether gum teeth or teeth alone are used, or separate or in groups.

The teeth are set in place in the wax plate, and adjusted to the
35 proper distance and fullness in the same manner as is generally practiced in setting teeth in gold plates. In the drawing the gum teeth are made separate, and marked *a*, *a*. The wax plate and gums, with the teeth adhering thereto, is now set upon the original plaster cast of the corresponding part of the mouth, and plaster is poured all around, up to about the lower edge (as it lies) of the wax plate. The margin or out-lying surface of plaster is oiled or varnished, and plaster poured over the whole, forming a complete mould of the plate and teeth. Upon the opening of this mould the wax is warmed and removed, so as to leave the teeth adhering in the plaster mould in exactly the relative position they are to occupy in the hard-rubber plate.

The teeth are provided with pins, *c*, *c*, projecting therefrom in such manner that the rubber which is to constitute the plate will close around them, and by means of them hold or secure the teeth permanently in position. The plaster mould, with the teeth adhering therein, as just described, is now filled with soft rubber, a little at a time pressed in with the finger or in other convenient way, and care is to be taken that the rubber is made to completely fit into the cavities and around the protuberances, (including the pins,) and is filled in to the thickness or depth desired to form the plate. I then lock the rubber plate in position by shutting the other half of the plaster mould over it to insure its retaining its exact form while warming, and then heat or bake it in an oven or in any other suitable way. The soft rubber or gum so inserted in the mould is to be compounded with sulphur-rubber, &c., in the manner prescribed in the patent of Nelson Goodyear, dated May 6, A. D. 1864, for making hard rubber, and it is to be subjected to sufficient heat to vulcanize or harden it, substantially as directed in that patent. It is also to be colored in imitation of the natural gums by mixing it with vermillion or other suitable coloring-matter while in a soft state. After the plate has been heated sufficiently to harden it or convert it into hard rubber or "vulcanite," so called, the mould is removed and the plate is polished ready for use.

Having thus described the method I have used for making and using said hard rubber or vulcanite plates—

What I claim herein, and desire to secure by letters-patent, is the
36 plate of hard rubber or vulcanite, or its equivalent, for holding artificial teeth or teeth and gums, substantially as described.

JOHN A. CUMMINGS.

JOSEPH GAVETT,
SAMUEL M. BARTON,
Witnesses.

Second reissue to Dental Vulcanite Company.

The United States of America to all to whom these letters-patent shall come:

Whereas John A. Cummings, of Boston, Massachusetts, (he having assigned his right, title, and interest in said improvement to the Dental Vulcanite Company of the same place,) has alleged that he has invented a new and useful improvement in artificial gums and palate, (for which

letters-patent were issued to him, dated June 7, 1864; the same surrendered and new letters ordered to issue to the Dental Vulcanite Company, dated January 10, 1865; which second letters having been surrendered by them, the same have been cancelled, and new letters ordered to issue to them on an amended specification,) which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; said assignees having paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose—

These are therefore to grant, according to law, to the said Dental Vulcanite Company, their successors or assigns for the term of
37 seventeen years from the seventh day of June, one thousand eight hundred and sixty-four, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said John A. Cummings, in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand at the city of Washington, this twenty-first day of March, in the year of our Lord one thousand eight hundred and sixty-five, and of the independence of the United States of America the eighty-ninth.

[L. S.]

J. P. USHER,
Secretary of the Interior.

Countersigned and signed with the seal of the Patent Office.

D. P. HOLLOWAY,
Commissioner of Patents.

The schedule referred to in these letters-patent, and making part of the same.

To all persons to whom these presents shall come:

Be it known that I, John A. Cummings, of Boston, in the county of Suffolk, and State of Massachusetts, have invented certain new and useful improvements in plates for artificial teeth; and that the following description, taken in connection with the accompanying plate of drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from all others of a similar class, together with such parts as I claim and desire to have secured to me by letters-patent.

The method hitherto practiced of attaching artificial teeth to
38 a metallic plate fitting to the roof of the mouth, is attended with many objections and inconveniences, as the plate, being hard and unyielding, naturally hurts the mouth, and, in some degree, impedes mastication and perfect articulation, while the expense of the metal employed prevents many from availing themselves of the advantage of artificial teeth.

My present invention consists in forming the plate to which the teeth, or teeth and gums are attached, of hard rubber, or "vulcanite," so

called, an elastic material possessing and retaining in use sufficient rigidity for the purpose of mastication, and at the same time being pliable enough to yield a little to the motions of the mouth.

My manner of making and using said hard-rubber plates is as follows: A wax or plaster impression of that part of the mouth which the plate is to fit is first taken, and from that impression a plaster cast is made, which will exactly resemble that part of the mouth from which the first impression was taken. A plate of wax, of the general form of the intended rubber plate, is then made from this plaster cast, and around the front of this wax plate a vertical ridge of wax is fixed, about in the position which the teeth are to occupy, in the same manner as is generally practiced in the construction of gold plates for artificial teeth. A plaster mould is then made from this wax plate, fitting it both on the upper and under side, which plaster mould is known generally as the articulator, and is constructed so as to hold the wax plate securely and conveniently for manipulation, leaving the front edge, where the teeth are to be applied, exposed and accessible. The figures of the accompanying plate of drawings represent my improvements.

Fig. 1 is a front elevation of a set of artificial teeth and plate formed by my improved method;

Fig. 2 is a view of the lower side of the plate and teeth;

Fig. 3 is a central vertical section of the same.

The teeth shown in the drawings are gum teeth, so called, that is, having porcelain gums formed in one piece with the teeth, and properly colored; and they are shown, each one separate. But they may be without porcelain gums, in which case the palate and gums will be formed in one piece of hard rubber; and if gum teeth, they may
39 be formed in groups of two or more, as desired. My mode of operation is the same, whether gum teeth or teeth alone are used, or separate or in groups. The teeth are set in place in the wax plate, and adjusted to the proper distance and fullness, in the same manner as is generally practiced in setting teeth in gold plates. In the drawing, the gum teeth are made separate, and marked *a*, *a*. The wax plate and gums, with the teeth adhering thereto, is now set upon the original plaster cast of the corresponding part of the mouth, and plaster is poured all around, up to about the lower edge (as it lies) of the wax plate; the margin, or outlying surface of plaster is oiled or varnished, and plaster poured over the whole, forming a complete mould of the plate and teeth. Upon the opening of this mould the wax is warmed and removed, so as to leave the teeth adhering in the plaster mould in exactly the relative position they are to occupy in the hard-rubber plate. The teeth are provided with pins, *c*, *c*, projecting therefrom in such manner that the rubber which is to constitute the plate will close around them, and by means of them hold secure the teeth permanently in position. The plaster mould, with the teeth adhering therein, as just described, is now filled with soft rubber, a little at a time, pressed in with the finger, or in any other convenient way; and care is to be taken that the rubber is made to completely fit into the cavities, and around the protuberances, including the pins, and is filled in to the depth or thickness desired to form the plate. I then lock the rubber plate in position by shutting the other half of the plaster mould over it, to insure its retaining its exact form while moulding, and then heat or bake it in an oven, or in other suitable way. The soft rubber, or gum, so inserted in the mould, is to be compounded with sulphur-rubber, &c., in the manner prescribed by the patent of Nelson Goodyear, dated May 6th, A. D. 1851, for making hard rubber, and is to be subjected to sufficient heat

to vulcanize or harden it, substantially as directed in that patent. It is to be colored in imitation of the natural gums, by mixing it with vermillion, or other suitable coloring matter, while in the soft state. After the plate has been heated sufficiently to harden it, or convert it into hard rubber, or "vulcanite," so called, the mould is removed, and the plate is polished ready for use.

40 Having thus described the method I have used for making and using said hard-rubber or vulcanite plates, what I claim herein, and desire to procure by letters patent, is—

The plate of hard rubber or vulcanite, or its equivalent, for holding artificial teeth, or teeth and gums, substantially as described.

JOHN A. CUMMINGS.

JOSEPH GAVETT,
SAMUEL M. BARTON,
Witnesses.

Assignment.—Cummings to Flagg and Osgood.

[5c. revenue stamp.]

Know all men by these presents that whereas I, John A. Cummings, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful improvements in rubber plates, &c., for dentists' use, for which I am about make application for letters-patent of the United State'; and

Whereas, G. H. P. Flagg & H. D. Osgood, both of Boston, in the State aforesaid, are desirous of acquiring one undivided quarter part of all the property in the said new invention, and in any letters-patent which may be granted therefor, and have contracted with me for the purchase of the same:

Now, therefore, this indenture witnesseth that, in pursuance of the said contract, and for and in consideration of the sum of one hundred dollars, to me in hand paid by the said Flagg & Osgood, the receipt whereof is hereby acknowledged, I have assigned, sold, set over and conveyed, and by these presents, do assign, sell, set over and convey unto the said Flagg & Osgood, one undivided quarter of all the property of whatsoever nature, which I have in the aforesaid new invention, as set forth in the specification which I have prepared and executed preparatory to the obtaining of letters-patent therefor.

41 In witness whereof I have hereunto set my hand and seal this first day of March, in the year eighteen hundred and sixty-four.

JOHN A. CUMMINGS. [L. S.]

Executed and delivered in presence of—
JOSEPH GAVETT.

STATE OF MASSACHUSETTS,
County of Suffolk, ss:

Then personally appeared before me the above-named John A. Cummings, and acknowledged the foregoing instrument by him signed and sealed to be his free act and deed.

JOSEPH GAVETT,
Justice of the Peace.

[5c. revenue stamp.]

U. S. PATENT OFFICE.

Received and recorded June 18, 1864, in Liber M 7, page 22, of transfer of patents.

In testimony whereof, I have caused the seal of the Patent Office to be hereunto affixed.

[SEAL.]

JOHN L. HAYES,
Act'g Com. of Patents.

Comp. Ex. 7. K. G. W., Rec. June 18, 1864. Fee, $1; paid.

Assignment.—Cummings to Gavett.

Know all men by these presents that whereas I, John A. Cummings, of Boston, in the county of Suffolk, and State of Massachusetts, have invented a new and useful rubber palate, for which I have
42 made application for letters-patent of the United States; and whereas Joseph Gavett, of said Boston, is desirous of acquiring one undivided eighth part of all the property in said new invention, and in any letters-patent which may be granted therefor, and has contracted with me for the purchase of the same:

Now, therefore, this indenture witnesseth that, in pursuance of the said contract, and for and in consideration of the sum of one hundred dollars to me in hand paid by said Joseph Gavett, the receipt whereof is hereby acknowledged, I have assigned, sold, set over, and conveyed, and by these presents do assign, sell, set over, and convey unto the said Joseph Gavett, one undivided eighth part of all the property, of whatsoever nature, which there is in the aforesaid new invention, as fully set forth in the specification which I have prepared and executed preparatory to the obtaining letters-patent.

In witness whereof I have hereunto set my hand and seal this sixteenth day of May, in the year eighteen hundred and sixty-four.

JOHN A. CUMMINGS. [L. S.]

Executed and delivered in presence of—
SAMUEL M. BARTON.

Comp. Ex. 8, N. A. P.

Assignment.—Cummings, Flagg, Osgood, and Gavett to Dental Vulcanite Company.

[5c. revenue stamp.]

Know all men by these presents that we, John A. Cummings, George H. P. Flagg, Herman D. Osgood, and Joseph Gavett, all of Boston, in the State of Massachusetts, in consideration of the sum of four hundred and eighty-eight dollars to us paid (and the receipt whereof is hereby acknowledged) by the Dental Vulcanite Com-
43 pany, a corporation established under the laws of the State of Massachusetts, do hereby, sell, assign, transfer, and convey to the said company, its successors and assigns, certain letters-patent of the United States, and the inventions and improvements secured thereby, granted to the said Cummings, dated June 7, 1864, and numbered 43009, and all improvements that have heretofore been made or may hereafter be made by any or all of us, in the use of rubber or gutta

percha for dental purpose: To have and to hold the same to the said company, its successors and assigns, to its own use and behoof.

Witness our own hands and seals this 30th day of July, A. D. 1864.

JOHN A. CUMMINGS. [L. S.]
G. H. P. FLAGG. [L. S.]
H. D. OSGOOD. [L. S.]
JOSEPH GAVETT. [L. S.]

[5c. revenue stamp.]

In presence of—
GEO. S. HALE,
To J. A. C., G. H. P. F., and H. D. O.

SUFFOLK, BOSTON, *ss:*

29TH JULY, 1864.

Then personally appeared the above-named John A. Cummings, G. H. P. Flagg, H. D. Osgood, and Joseph Gavett, and severally acknowledged the foregoing instrument by them subscribed to be their free act and deed.

Before me.

EDWIN H. ABBOTT,
Justice of the Peace.

U. S. PATENT OFFICE.

Received and recorded Aug. 5, 1864, in Liber O 7, page 77, of transfers of patents.

In testimony whereof I have caused the seal of the Patent Office to be hereunto affixed.

D. P. HOLLOWAY,
Comm'r of Patents.

Comp. Ex. 9, N. A. P. Received Aug. 5, 1864. Fee, $2; paid.

44 *Assignment.—Dental Vulcanite Company to Josiah Bacon.*

Know all men by these presents that the Dental Vulcanite Company, a corporation duly organized under the general laws of Massachusetts, in consideration of five hundred dollars to them paid by Josiah Bacon, of Boston, have sold, transferred, and assigned, and by these presents do sell, transfer, and assign to Josiah Bacon, his heirs, administrators, and assigns, the letters-patent of the United States, which were issued to the Dental Vulcanite Company, assignees of John A. Cummings, for an improvement in artificial gums and palate, said letters-patent bearing date March 21, 1865, and being numbered reissue 1904: To have and to hold said letters-patent, the invention therein described, and the rights and privileges thereby secured and granted to him, the said Bacon, his heirs, administrators, and assigns, during the full term of said letters-patent, and all reissues and extension thereof; and for the consideration aforesaid the Dental Vulcanite Company hereby convey to said Bacon all rights which they may have to commence actions for damages for infringements upon said letters-patent, with the right to use the name of said company in all such actions; and they do also assign and convey to said Bacon all licenses and agreements for the use of said invention which they have executed, with the right to collect all amounts now due, or which may become due, for the use of said leters-patent or invention, under all such licenses or agreements.

In witness whereof the Dental Vulcanite Company have caused their corporate seal to be hereto affixed, and these presents to be subscribed by George P. Sanger, their president, who is duly authorized thereto by a vote of this corporation, this seventeenth day of July, 1866.

[SEAL.] (Signed) GEO. P. SANGER, *President.* [L. S.]

Signed, sealed, and delivered in presence of—
GEORGE P. WHEELER.

45 COMPLAINANTS' EXHIBIT B.

[Stamp.]

Whereas letters-patent of the United States were granted to John A. Cummings, bearing date June 7th, 1864, for an improvement in artificial gums and palates, and were afterwards assigned to the Dental Vulcanite Company, a corporation established by law of the Commonwealth of Massachusetts; and the said dental company, assignees, obtained a reissue of said letters-patent, dated January 10, 1865, and afterwards a reissue of said reissue, dated March 21, 1865, and did, on or about the 17th day of July, A. D. 1866, by its deed of assignment of that date, sell and assign to Josiah Bacon, of Brookline, in said Massachusetts, (therein described as of Boston, in said Massachusetts,) and to his heirs, administrators, and assigns the said reissue patent of March 21, 1865, and all the rights and privileges thereby secured and granted, and also all the rights which the said company then had to damages for infringements upon said letters-patent, with the right to use the name of the said company in all actions for the recovery thereof; and did also assign and convey to said Bacon all licenses and agreements for the use of said invention, which they the said company had then executed, with the right to collect all amounts then due or which should thereafter become due for the use of said letters-patent or invention under all such licenses or agreements:

[Stamp.]

Now, I, the said Josiah Bacon, for and in consideration of the sum of one dollar to me paid by the Goodyear Dental Vulcanite Company, a corporation duly organized and established under the laws of the State of New York, have assigned and sold, and do hereby assign and sell unto the said Goodyear Dental Vulcanite Company, its successors and assigns, all my right, title, and interest as aforesaid in the said reissue patent of March 21, 1865, and all the other rights and interests to me conveyed as aforesaid, and also the right to demand, sue for, and
46 collect to its, the said company's, own use, (but in my name, if necessary,) all damages and profits, due at law and in equity, for infringements of said reissue, committed since July 17th, 1866, and all monies due or to become due under any and all licenses to use said invention which have been executed since said July, 1866, and also the right to prosecute to final issue the suits now pending in equity in my name for infringement of said letters-patent, and the right to all interlocutory remedies in said suit, and to the monies to be therein recovered.

Witness my hand and seal the seventh day of January, anno Domini one thousand eight hundred and sixty-eight.

(Signed) JOSIAH BACON. [L. S.]

(Signed)
A. POLLOCK,
A. ,
Witnesses.

R. H. W. U. S. PATENT OFFICE.

Received for record March 4, 1868, and recorded in Liber D 10, page 213, of transfers of patents.

In testimony whereof I have caused the seal of the Patent Office to be hereunto affixed.

[SEAL.] (Signed) A. M. STOUT,
Acting Comm'r of Patents.

47

48 *Examination of John B. Newbrough.*

MAY 26, 1869.

Present, counsel for respective parties.

JOHN B. NEWBROUGH, being duly sworn and examined as a witness on the part of the complainants, deposeth and saith:

Q. 1. Are you the defendant in this case?

A. I am.

Q. 2. And a practising dentist in New York?

A. I am.

Q. 3. Have you attended here this morning as a witness in obedience to a subpœna?

A. I have.

Q. 4. At the time the bill was filed in this case were you engaged as a practical dentist in making hard-rubber plates for artificial teeth, the hard rubber used being what is known as iodized rubber?

A. It was done in my place for me, under my orders.

Q. 5. Had you previously thereto, at any time, been engaged in the same manner in the manufacture of hard-rubber plates for artificial teeth, using what is known as the Goodyear hard rubber?

A. I had been.

Q. 6. Was that manufacture with the Goodyear hard rubber, done under license from the Goodyear Dental Vulcanite Company?

A. I never had a license as such from that company, nor was I permitted to have. I had, however, an agreement by which I was entitled to use it for a short time.

Q. 7. And was it under that agreement that you manufactured the plates with the Goodyear hard rubber?

A. It was, after the settlement of the Waite case.

Q. 8. Will you please to state how the method or process which you employ, or which is employed for you in your office under your direction, for putting up sets of artificial teeth with the iodized rubber plates differs from that which was employed in like manner, for putting up sets of artificial teeth with the Goodyear hard rubber, as it was done
49 under the agreement just mentioned? State what differences exist other than the use of steam heat for hardening rubber in one case, and dry heat in the other.

A. In a general broad sense the difference in the process between the two kinds of rubber is centered within that single expression "dry heat," but in detail to work and prepare hard-rubber plates by dry heat, necessarily involves a difference in the manner of preparing the plaster, packing the rubber, and temperature of baking. The models for iodized rubber are prepared with sand, mixed with plaster. The teeth are mounted on the models in the usual manner, after which they are encased in other sand and plaster in a flask so constructed, that, after the

wax is removed, the moisture in the plaster is all dried out. This precaution of using sand and of encasing in a flask for the purpose of drying out the plaster, is not done when vulcanite is used. When the rubber to be inserted in the mould or flask containing the teeth for iodized rubber it (the flask) is made hot, so that in pressing the flask together the rubber softens so that it can be pressed in place. When the flask is properly heated in this way, it contains sufficient heat to bake the rubber; but, in general practice, the flask is pressed shut at a lower temperature and the heat continued by placing it in a dry oven for a certain length of time. But when the Goodyear rubber is to be used instead of iodized rubber, it is placed within the mould or flask, the flask being cold, ordinarily, is then put into boiling water for a sufficient length of time to soften the rubber, in order that it may be pressed in position. The flask now containing the teeth is put in a steam heater, and vulcanized by gradually increasing heat.

Q. 9. Will you now please give a statement of the method or process, step by step, which you employ for putting up sets of artificial teeth in iodized rubber plates, avoiding, if you please, all expressions of expert opinion and all statements not exactly responsive to the question?

(The defendant's counsel insists that the witness cannot be re-
50 quired to confine himself to exactly the process, and not to what, in his opinion, is necessary to a correct understanding of the process called for by the first part of the question; and that if he answers the question it would be necessary for him to detail all matters that he deems necessary to the process and a proper understanding of its nature.)

A. An impression of the jaws is taken with either wax or plaster. Into this impression we pour sand and plaster to a depth of perhaps, one inch; after this sand and plaster has set it is withdrawn from the impression. That's our model. On this model we form a temporary plate of wax or other suitable material about the sixteenth of an inch thickness. On this temporary wax plate are adjusted the teeth which are intended to be mounted, and when properly arranged the teeth, wax, and model are encased within a flask containing sand and plaster which is arranged so as to open near the middle, and when open containing the teeth in such manner that the temporary wax plate may be removed. After this wax has been removed, the open flask is put in some warm place at a temperature something about boiling-water point, in order to drive out all the moisture. When this is effected it is ready to receive the rubber, precaution being used to maintain the warmth, so that when iodized rubber is placed on the model it melts and moulds itself in place by shutting the flask. It is now usually put in a dry oven at a temperature of something over 300 degrees, and left there for sufficient time for the iodine to harden the rubber. It is next removed from the oven, the flask opened, and the hard-rubber plate with the teeth on it taken out of the flask, and then it is ready for finishing and polishing.

Q. 10. You say that you form upon your sand-and-plaster model a temporary plate of wax or other suitable material on which you adjust the teeth. Is this plate of wax in the form in which the intended rubber plate is to be?

A. It is, but not so perfectly finished.

Q. 11. And the plate of wax is formed with a ridge answering to the gum of the intended plate, is it?

51 A. I don't make it that way.

Q. 12. How do you make it?

A. I use what is called gum teeth.

Q. 13. You say that after the teeth are properly adjusted in the tem-

porary plate, they are encased in a flask containing sand and plaster. Is there, then, a complete envelope of sand and plaster encasing or enclosing the temporary plate with the teeth adjusted therein?

A. Yes, sir, there is.

Q. 14. And when the wax or other material constituting the temporary plate is removed, there remains a hollow mould of sand and plaster with the teeth standing in the proper position, which hollow mould is designed to be occupied by the rubber?

A. Yes.

Q. 15. Are the teeth you use formed with pins around which the rubber lies when it is hardened?

A. Generally they are.

Cross-examined:

Cross-q. 16. How long has the profession used the wax or plaster impression of that part of the mouth from which the plate or model fit is to be taken?

(Objected to as opening new matter.)

A. To my certain knowledge it has been in use more than twenty years; but it is described in publications long before that.

Cross-q. 17. And a plaster cast from this first impression?

(Objected to as above.)

A. I believe ever since mechanical dentistry was introduced.

Cross-q. 18. And from this, again, a second mould or model of
52 wax, to which teeth are inserted in the manner as is generally practiced in the construction of gold plates for artificial teeth?

(Objected to as above and as incompetent.)

A. It has always been in use since gold plates have been made. Certainly for more than twenty years to my own knowledge.

Cross-q. 19. What is "cheoplastic," and when did it first come into use?

(Objected to as opening new matter.)

A. It is a term applied to plates formerly made of amalgam, but recently the term has been applied to plates made of block tin. It originated, as near as I can learn, about forty years ago. To my own knowledge it has been used for over twenty years.

Cross-q. 20. State the difference, if any, in the process of making artificial teeth as under the old process, with amalgam cheoplastic, and that of vulcanized rubber.

(Objected to as above.)

A. Save and except the differences in the construction of the teeth themselves, the general process for cheoplastic work was the same as that process by which we use iodized rubber, differing from vulcanite, for which we do not dry the plaster nor prepare it with sand. The metal takes the place in the mould which was formerly occupied by the wax in exactly the same manner as rubber.

Redirect:

(Counsel for the complainant puts the following redirect interrogatories, de bene esse, not waiving any objection heretofore taken.

Defendant's counsel objects to any redirect examination as
53 above, unless the complainants withdrew the objections already taken to the cross-examination as being in relation to new matter.)

Q. 21. How long have you been a practicing dentist?

A. Over twenty years.

Q. 22. Did you ever use cheoplastic in the manner you have described?

A. I have.

Q. 23. When first?

A. The first piece I remember making with my own hands was in the summer of 1847; perhaps it might have been '48.

Q. 24. Did you ever put up sets of artificial teeth in cheoplastic plates in the ordinary way of professional practice, that is, for patients and for pay?

A. I remember getting payment for the first piece I made, and it was done for a patient.

Q. 25. When did you make your last one for a patient and for pay?

A. I don't remember the day, but we make some every week, and have for the last five years.

Q. 26. Will you give the name or names of some other prominent dentists in this city who have put up sets of artificial teeth in cheoplastic plates?

A. I design producing such men in this cause, and will at the proper time give you a list of them.

Q. 27. About how many of them are there?

A. I don't know.

Q. 28. About how many?

A. I should suppose two or three hundred, though I do not design bringing that number of witnesses.

Q. 29. Can't you give us the names and residences of some whom you do not design to call out of the two or three hundred?

(Objected to as irrelevant.)

A. Dr. Luther, 18th street; Dr. Durkin, Canal street; Dr. Tatterson; John Connell, of Brooklyn.

54 Q. 30. Do you know whether anybody ever took a patent for using the process of cheoplastic for this purpose?

(Objected to as incompetent, and as not the best evidence, and as irrelevant.)

A. I do not, though I believe a party took a patent for a composition of metal for making that kind of work. I believe his name was Blandy.

Q. 31. Do you mean to be understood that in the use of cheoplastic, as practiced by yourself and others for putting up artificial sets of teeth, there is formed a mould in which the teeth stand in their proper relative positions, the cavity of the mould being of the form of the intended plate, and being filled with cheoplastic in a soft state?

A. The mould is formed the same, the cavity to receive the plate is the same. The metal, as we now use it, is melted and poured in, the mould having been previously heated as for iodized rubber. When rubber is used instead of metal, it is sometimes placed in the mould and pressed in shape. Another way is by pumping it into the mould in a soft state.

Q. 32. In the use of cheoplastic is there formed just such a mould as is formed in the use of rubber, that is to say, having the teeth standing in the cavity of that mould in their proper relative positions before the cheoplastic is inserted, the cavity of the mould being of the intended shape of the plate?

A. It is just the same.

Q. 33. And this was done twenty years ago?

A. I believe it has been done, to a limited extent, for nearly forty years.

Q. 34. Was it done in the regular practice of dentistry as much as twenty years ago?

A. I cannot remember at so distant a period; neither do I believe, from my knowledge of the general practice of dentistry, that that time would warrant me in saying whether it was general or not. I can state, however, that it was only within a few years, perhaps fourteen or
55 fifteen years, that it has been carried to a degree of perfection which would make it necessary to use for ordinary plates. My first knowledge of it, as near as I can remember, was that it was used in cases of defects from great absorption in partial sets of teeth in the lower jaw.

Q. 35. When you say defects from great absorption, defects of what, and absorption of what, do you mean?

A. I mean that when the alveolar ridge has become so absorbed or sunken down, that it is necessary to use a plate of such form as will, in a great measure, fill up the loss.

Q. 36. Has cheoplastic been used, to your knowledge, for more than fourteen or fifteen years, except in cases of defects from great absorption as above mentioned by you?

A. I think not; but of my own knowledge I do not know.

Q. 37. In cases of defects from great absorption, in partial sets of teeth in the lower jaw, when cheoplastic was used, to make the plate to meet such a case, was there a mould formed in the interior of which teeth stood in their proper relative positions, the cavity of such mould being of the shape of the intended plate and the cheoplastic, when introduced, having the teeth embedded therein?

A. It was the same, save some slight improvements which have been made since, particularly in the flask.

Q. 38. In the use of cheoplastic, after the mould containing the teeth in position has been filled with it, what is done?

A. It is taken out after it has set by cooling, and is finished up.

J. B. NEWBROUGH.

Subscribed and sworn to before me this 26th day of May, 1869.

KENNETH G. WHITE,
Examiner.

Adjourned to Friday, the 28th of May, 1869, at 11 o'clock.

Adjourned to June 4th, 1869, at 11 o'clock.

56 FRIDAY, *June 4th*, 1869.

Present, counsel for the respective parties.

AHRON LEWENBERG, being duly sworn and examined as a witness on the part of the complainants, deposeth and saith:

Q. 1. What is your name, age, residence, and occupation?

A. My name is Ahron Lewenberg; my age is 52; I reside at 198 Grand street, New York City; my occupation, dentist.

Q. 2. How long have you been practicing dentistry?

A. About 15 years for myself. I have been in the general business from my childhood, in the old country.

Q. 3. Have you read the specification of the reissued letters-patent of John A. Cummings, dated March 21st, 1865, and do you understand the same?

A. Yes, sir.

Q. 22. Did you ever use cheoplastic in the manner you have described?

A. I have.

Q. 23. When first?

A. The first piece I remember making with my own hands was in the summer of 1847; perhaps it might have been '48.

Q. 24. Did you ever put up sets of artificial teeth in cheoplastic plates in the ordinary way of professional practice, that is, for patients and for pay?

A. I remember getting payment for the first piece I made, and it was done for a patient.

Q. 25. When did you make your last one for a patient and for pay?

A. I don't remember the day, but we make some every week, and have for the last five years.

Q. 26. Will you give the name or names of some other prominent dentists in this city who have put up sets of artificial teeth in cheoplastic plates?

A. I design producing such men in this cause, and will at the proper time give you a list of them.

Q. 27. About how many of them are there?

A. I don't know.

Q. 28. About how many?

A. I should suppose two or three hundred, though I do not design bringing that number of witnesses.

Q. 29. Can't you give us the names and residences of some whom you do not design to call out of the two or three hundred?

(Objected to as irrelevant.)

A. Dr. Luther, 18th street; Dr. Durkin, Canal street; Dr. Tatterson; John Connell, of Brooklyn.

54 Q. 30. Do you know whether anybody ever took a patent for using the process of cheoplastic for this purpose?

(Objected to as incompetent, and as not the best evidence, and as irrelevant.)

A. I do not, though I believe a party took a patent for a composition of metal for making that kind of work. I believe his name was Blandy.

Q. 31. Do you mean to be understood that in the use of cheoplastic, as practiced by yourself and others for putting up artificial sets of teeth, there is formed a mould in which the teeth stand in their proper relative positions, the cavity of the mould being of the form of the intended plate, and being filled with cheoplastic in a soft state?

A. The mould is formed the same, the cavity to receive the plate is the same. The metal, as we now use it, is melted and poured in, the mould having been previously heated as for iodized rubber. When rubber is used instead of metal, it is sometimes placed in the mould and pressed in shape. Another way is by pumping it into the mould in a soft state.

Q. 32. In the use of cheoplastic is there formed just such a mould as is formed in the use of rubber, that is to say, having the teeth standing in the cavity of that mould in their proper relative positions before the cheoplastic is inserted, the cavity of the mould being of the intended shape of the plate?

A. It is just the same.

Q. 33. And this was done twenty years ago?

A. I believe it has been done, to a limited extent, for nearly forty years.

Q. 34. Was it done in the regular practice of dentistry as much as twenty years ago?

A. I cannot remember at so distant a period; neither do I believe, from my knowledge of the general practice of dentistry, that that time would warrant me in saying whether it was general or not. I can state, however, that it was only within a few years, perhaps fourteen or
55 fifteen years, that it has been carried to a degree of perfection which would make it necessary to use for ordinary plates. My first knowledge of it, as near as I can remember, was that it was used in cases of defects from great absorption in partial sets of teeth in the lower jaw.

Q. 35. When you say defects from great absorption, defects of what, and absorption of what, do you mean?

A. I mean that when the alveolar ridge has become so absorbed or sunken down, that it is necessary to use a plate of such form as will, in a great measure, fill up the loss.

Q. 36. Has cheoplastic been used, to your knowledge, for more than fourteen or fifteen years, except in cases of defects from great absorption as above mentioned by you?

A. I think not; but of my own knowledge I do not know.

Q. 37. In cases of defects from great absorption, in partial sets of teeth in the lower jaw, when cheoplastic was used, to make the plate to meet such a case, was there a mould formed in the interior of which teeth stood in their proper relative positions, the cavity of such mould being of the shape of the intended plate and the cheoplastic, when introduced, having the teeth embedded therein?

A. It was the same, save some slight improvements which have been made since, particularly in the flask.

Q. 38. In the use of cheoplastic, after the mould containing the teeth in position has been filled with it, what is done?

A. It is taken out after it has set by cooling, and is finished up.

J. B. NEWBROUGH.

Subscribed and sworn to before me this 26th day of May, 1869.

KENNETH G. WHITE,
Examiner.

Adjourned to Friday, the 28th of May, 1869, at 11 o'clock.

Adjourned to June 4th, 1869, at 11 o'clock.

56 FRIDAY, *June 4th*, 1869.

Present, counsel for the respective parties.

AHRON LEWENBERG, being duly sworn and examined as a witness on the part of the complainants, deposeth and saith:

Q. 1. What is your name, age, residence, and occupation?

A. My name is Ahron Lewenberg; my age is 52; I reside at 198 Grand street, New York City; my occupation, dentist.

Q. 2. How long have you been practicing dentistry?

A. About 15 years for myself. I have been in the general business from my childhood, in the old country.

Q. 3. Have you read the specification of the reissued letters-patent of John A. Cummings, dated March 21st, 1865, and do you understand the same?

A. Yes, sir.

Q. 4. Have you heard read the answers of John B. Newbrough in his deposition in this cause to the 8th, 9th, 10th, 11th, 12th, 13th, 14th, and 15th questions?

A. I have.

Q. 5. Will you please state how the method or process described in said answers of putting up sets of artificial teeth, with iodized rubber-plates, differs from the method or process described in said reissued letters-patent, if at all?

(Objected to as contradicting the witness already produced by the complainant.)

A. I have never put up any iodine rubber. I have put up the Goodyear rubber, and I find there is no difference between the iodine and the Goodyear, with the exception of using sand and plaster mixed up for the purpose of using heat, not steam, because plaster alone would not stand the heat. There is no difference between the process described in the patent and the process described in the answers, except the sand.

Q. 6. How long has sand, mixed with plaster, been used for making moulds in dentistry?

57 A. I have known it to be for about 28 or 29 years.

Q. 7. After the moulds were so made, was the moisture dried out, and how?

A. It was dried out by heat.

Q. 8. How was the heat applied?

A. Either by lamp or stove.

Cross-examined:

Cross-q. 9. When you made artificial teeth of Goodyear vulcanite, did you ever put the rubber in the moulds while the moulds were hot?

A. No, sir. We heat the rubber, and then pack it in the moulds.

(The latter part of the question objected to as not responsive.)

Cross-q. 10. Did you ever see vulcanite rubber hardened and cured, after being packed, without further heating the moulds to bake it?

A. When we shut up the flask, after the rubber is packed into the mould, we subject it to a gentle heat or boiling water in order to press the rubber in its form, and close the flask as tight as can be, and then put it into the vulcanizer, and vulcanize to over 300 degrees heat.

The question being repeated, the witness answers, No.

Cross-q. 11. What do you believe to be the consequence of swearing falsely?

(Objected to as immaterial and too late.)

A. I should believe that the laws of the country would punish a person for violating his oath. The ten commandments teach us that "Thou shalt not bear false witness against thy neighbor." I believe that I would be punished in the other world for violating that commandment.

AHRON LEWENBERG.

Sworn to before me, this 4th day of June, 1869.

KENNETH G. WHITE,
Examiner, &c.

Adjourned to give new notice.

58 *Schedule A, referred to in stipulation No. 2.*

To Hon. THOMAS EWBANK,
Commissioner of Patents:

The petition of John A. Cummings, of Boston, in the county of Suffolk, and State of Massachusetts, respectfully represents:

That your petitioner has invented certain new and useful improvements in the setting and plates of artificial sets of teeth, and that he is desirous of further time to prepare his specifications, &c., and to make further experiments to mature his invention, previous to his applying for letters-patent therefor. He therefore prays—

That the subjoined description of his invention may be filed as a caveat in the confidential archives of the Patent Office, and preserved in secrecy, and that due notice may be given him through Ezra Lincoln, of Boston, his attorney, of any interfering application which may be filed during the space of one year from the date hereof, he having paid twenty dollars into the Treasury of the United States, and complied with all the requisitions of the patent acts in such cases made and provided.

JOHN A. CUMMINGS.

BOSTON, *May 11th*, 1852.

The following is the description referred to in the foregoing petition:

59 A serious objection has hitherto been experienced in fitting sets of artificial teeth, arising from the hard, unyielding nature of the plate by which they were held in the mouth, as this plate not only hurt the mouth, but impeded, in some degree, both mastication and perfect articulation. The expensive material, also, of which the plate has been composed has prevented many persons from availing themselves of the advantages of artificial teeth. My improvements, by which these objections are obviated, consist in forming the plate, and also the gums in which the teeth are inserted, of rubber or some other elastic substance, so compounded with sulphur, lead, and other similar substances, as to form a hard gum, "or whalebone gum," which is rigid enough for the purposes of mastication, and pliable enough to yield a little to the mouth. By this improvement the teeth can be easily baked into the gums, which form one piece with the plate.

The plate, by its elastic and yielding properties, will adapt itself more readily and accurately to the inequalities of the mouth, and thereby be held firmly in the same, and at the same time yield a little to the motions of the mouth in mastication or articulation, thus effecting a desideratum which has long been considered of great importance.

The United States Patent Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the files of this office of the file wrapper and contents in the matter of the rejected application of John A. Cummings, filed April 12th, 1855, and rejected February 6th, 1856.

In testimony whereof I, John L. Hayes, Acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed, this 5th day of October, in the year of our Lord 1864, and of the independence of the United States the eighty-ninth.

JOHN L. HAYES.

60 BOSTON, *April* 10, 1855.

DEAR SIR: Herewith I send you the petition, specification, duplicate drawings, and treasury record for supplementary fee of $10, constituting J. A. Cummings' application for a patent for improvements in artifiicial palates and gums, and for inserting artificial teeth.

The specimen is also enclosed. Please file the case as usual and oblige, your ob'd't serv't,

EZRA LINCOLN.

To Hon. CHARLES MASON,
Commissioner of Patents:

The petition of John A. Cummings, of Boston, in the county of Norfolk, and State of Massachusetts, respectfully represents:

That your petitioner has invented certain new and useful improvements in the method of forming artificial palates and gums, an exclusive property in which he is desirous of having secured to him and his legal representatives by letters-patent according to law, he having previously filed a caveat for the same, and paid twenty dollars into the Treasury of the United States, and having paid the remaining fee of ten dollars and complied with all the requisitions of the patent acts, in such case made and provided.

JOHN A. CUMMINGS.

BOSTON, *April* 9, 1865.

To Hon. CHARLES MASON,
Commissioner of Patents.

SIR: I hereby recognize and appoint Ezra Lincoln, of Boston, as my agent and attorney to solicit and receive letters-patent for my improved method of forming artificial palates and gums; also, for with-
61 drawing my application for the same, should it be found necessary, and in general do all such things in the premises, as he may deem to be for my advantage.

JOHN A. CUMMINGS.

BOSTON, *April* 9, 1855.

19 MAY, 1855.

The specification and claim of your application for L. P. for forming artificial palates and gums have been received. You are referred to the article "Gutta-percha, as a base for artificial teeth," in the American Journal of Dental Science, vol. II., series 2, page 382, and to Delebarre's artificial palates and gums, described in Dinglo's Polytechnic Journal, vol. 122, page 239, wherein you will find your device articipated.

Your claim is therefore rejected.

JOHN A. CUMMINGS, Esq.,
(Care of Ezra Lincoln,)
Boston, Mass.

BOSTON, *July 30th*, 1855.

DEAR SIR: With this I return you the specification of John A. Cummings' imp'ts in sets of artificial teeth. After examining the references in the letter from the office of May 19th very carefully, Mr. Cummings has amended his specification, and taken the oath of invention, and having stricken out all reference to gutta-percha. In the originating this invention Mr. Cummings supposed that he was the first in the

use of mineral teeth, &c., with a gum which becomes plastic by heat and hardens by cooling; but he had always intended to use the vulcanized rubber as the best material, and only put in gutta-percha for the sake of extending his protection. The vulcanized rubber, as he writes in his amendment to his specification, has many properties which peculiarly adapt it to this use, and which being absent in gutta-percha, he now finds would render it unfit for such a use.

62 I beg the office not to consider that, because gutta-percha has been used before with artificial teeth, *that* Mr. Cummings' invention is therefore the mere substitution of one substance for another and similar one, for such is not the case.

The vulcanizing process makes all the difference, requiring invention and experiment, and changes the article of manufacture entirely, making the palate elastic, which gutta-percha would not, and rendering the whole article, (so far as gums and palates are concerned,) capable of resisting heat and acids, which gutta-percha will not.

There is a similar case which was granted last year, and which is perfectly parallel to the case now presented.

A patent was granted to J. M. Batchelder, June 13, 1854, for covering telegraph wires with India-rubber, &c., for insulating them &c., where wires had been before covered with gutta-percha for the same purpose. With these views and the suggestions contained in the amendments to the specification now sent, I ask for a revision of the decision. I send herewith a more perfect specimen of a set of teeth, although the materials are precisely similar to those of the sample at the office. I also send a certificate of a gentleman who has used a set for some time.

Very resp. yours,

EZRA LINCOLN.

Hon S. T. SHUGERT,
Acting Commissioner of Patents.

This certifies that I have worn a set of teeth constructed on the principle of Dr. J. A. Cummings, of Boston, in an India-rubber plate, for about three months, and find that it is better suited to the mouth for dental purposes than metallic plates. The elasticity and texture of the India-rubber makes it more congenial to the mouth. Having worn several sets on metallic plates, and for the time of three years, I am

63 able to speak understandingly and with confidence in regard to the value of India-rubber for dental substitutes.

F. A. BEVIN.

STATE OF CONNECTICUT,
New Haven County, City of New Haven, ss:

Personally appeared before me the above-mentioned F. A. Bevin, and made oath to the above statement.

LUCIUS ATWATER,
Justice of the Peace.

Signed in presence of,
EDWIN D. ATWATER.

This oath has been informally changed by the appellants contrary to the rules, 3d August, 1865.

STATE OF MASSACHUSETTS,
County of Suffolk, ss:

On this 30th day of July, in the year 1855, personally appeared before me,

the above-mentioned John A. Cummings, and made oath that he verily believes himself to be the original and first inventor of the improvements hereinabove specified and described; that he does not know or believe the same was ever before known or used, and that he is a citizen of the United States of America.

[NOTORIA PUBLICA.]

EZRA LINCOLN,
Notary Public.

STATE OF MASSACHUSETTS,
County of Suffolk, ss:

On the 30th day of July, 1855, personally appeared before me, the above-named John A. Cummings, and made oath that he verily
64 believes himself to be the original and first inventor of the improvements hereinabove specified and described; that he does not know or believe the same to have ever before been known or used, and that he is a citizen of the United States of America.

[L. S.] EZRA LINCOLN,
Notary Public.

To the Hon. S. T. SHUGERT,
Acting Commissioner of Patents.

SIR: I hereby amend my specification, by striking out the words "or some other elastic material," on the 27th and 28th lines of page 1, and substituting the word "vulcanized" for the word "indurated," in the 28th line of the same page; also by striking out the words "or of gutta-percha, or in fact any elastic substance," in the 7th and 8th lines of the second page, and the words "or other elastic material," in the 16th and 17th lines of page 2; also by inserting at the close of the specification the following words, viz: "I am aware that gutta-percha has been used for artificial palates, but has been found to be totally inadequate to the purpose, as it becomes plastic when submitted to water below the boiling temperature, and cannot, therefore, withstand the heat of the liquids which ordinarily are passed through the mouth; neither can it resist the action of the acids which come from the secretions about the same, and consequently its application to the purpose has long been abandoned as impracticable.

My improvement in the manufacture of artificial sets of teeth, it will be observed, consists in combining them with rubber, &c., which is vulcanized after the teeth are inserted therein.

The vulcanized rubber may be made nearly as hard as bone, and yet retain some of its elasticity, and after being properly vulcanized it is unaffected by exposure to the air, to water, to organic acids, and
65 uninfluenced by any ordinary agents. It therefore possesses all the qualities which are desirable in artificial palates, which, as I have before stated, gutta-percha does not.

I also further amend my specification by striking out the claim, and inserting in lieu thereof the following:

"I do not claim the use of gutta-percha, or of any material which is merely rendered plastic by heat, and hardened cooling in the manufacture of sets of artificial teeth, but what I do claim as my invention, and desire to have secured to me by letters-patent, is the improvement in the manufacture of sets of mineral or other artificial teeth, which consists in combining them with a rubber palate and gums, which (after the insertion of teeth) are vulcanized by Goodyear's process, or any other pro-

cess, forming thereby a cheap, durable, and elastic substitute for the gold plates, &c., heretofore used.

JOHN A. CUMMINGS,
By his attorney, EZRA LINCOLN.

BOSTON, *July 30th*, 1855.

To the Hon. CHARLES MASON,
Commissioner of Patents.

SIR: I hereby amend my amendment to the specification of my improvement in *gas-burners* by substituting the word "plate" for "palate" wheresoever the same occurs in the said amendment.

JOHN A. CUMMINGS,
His att'y, EZRA LINCOLN.

BOSTON, *January 17th*, 1856.

To all persons to whom these presents shall come:

Be it known that I, John A. Cummings, of Boston, in the
66 county of Suffolk and State of Massachusetts, have invented certain new and useful improvements in the manner of forming artificial plates and gums used for inserting teeth, and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, form a full and exact specification of the same, wherein I have set forth the nature and principles of my said invention, by which it may be distinguished from others of a similar class, together with such parts as I claim, and desire to have secured to me by letters-patent.

The figures of the accompanying plate of drawings represent my improvements. Fig. 1 is a front elevation of a set of artificial teeth, and plate formed by my improved method; Fig. 2 is a view of the lower side of the plate and teeth; Fig. 3 is a central vertical section of the same.

The method hitherto practiced of attaching artificial teeth to a metallic plate fitting to the roof of the mouth, is attended with many objections and inconveniences, as the plate, being hard and unyielding, naturally hurts the mouth, and in some degree impedes mastication, and perfect articulation, while the expense of the metal employed prevents many from availing themselves of the advantage of artificial teeth.

The present invention consists in forming the plates and gums to which the teeth are attached of rubber, or some other elastic material, so indurated as to be rigid enough for the purpose of mastication, and pliable enough to yield a little to the motions of the mouth, and in one piece, the teeth being imbedded in the elastic material, while said material is in a soft condition, and then baked with the gum and plate, so that the teeth, gums, and plate will all be connected, forming, as it were, one piece.

a, *a*, *a*, and C, in the drawings, represents the artificial teeth prepared in the usual manner.

The plate and gums, *b*, *b*, and *c*, *c*, are formed in one piece and of rubber, or of rubber and the compounds commonly employed therewith, or of gutta-percha, or in fact of any elastic substance which can be re-
duced to a soft condition, and then vulcanized, or hardened suffi-
67 ciently to answer the purposes. The rubber or other material is first moulded so as to fit the shape of the mouth and gums formed, and while soft and pliable the teeth "*a*" are embedded in the gums, and, as an additional security, fastened to the same by small pins C^1 C^1,

Fig. 3. The teeth, gums, and plate, being then connected, are then baked until the rubber or other elastic material becomes sufficiently vulcanized, when the process is completed, the plate being hard and rigid enough for the purposes of mastication, and yet by its elastic nature yielding to the motions of the mouth, while the teeth are firmly embedded and secured in the gums. The plate and gums can be colored in any proper manner to imitate nature.

Having thus described my improvement, I shall state my claim as follows:

What I claim as my invention, and desire to have secured to me by letters-patent, is—

Forming the plate and gums in which the teeth are inserted in one piece of rubber, (or other elastic material or materials,) which can be hardened sufficiently for the purpose of mastication, and retain a portion of its elasticity, so as to yield a little to the motion of the mouth, as herein set forth, and for the purposes specified.

JOHN A. CUMMINGS.

Witnesses,
EZRA LINCOLN.
JOSEPH GAVETT.

AUGUST, 1855.

Yours of the 30th ult., with enclosure in the case of your application for letters-patent for artificial dental palates and gums is received, and your case will be considered as soon as you comply with regard to the renewal of your oath, without infringement upon the other rules, that no erasure is ever permitted in any paper on file in this office.

The date of your oath being erased and another substituted is no evidence of the renewal.

68 Your specification is returned to enable you to renew the oath in proper form.

JOHN A. CUMMINGS,
(Care of Ezra Lincoln,)
Boston, Mass.

BOSTON, *August 8th*, 1855.

DEAR SIR: With this, I return the specification of Dr. John A. Cummings, having amended the same by appending the new oath. I should not have made the erasure in the original oath, had I not supposed that such things were permitted, thinking that the oath was considered a matter independent of the specification.

Very respectfully, your obed't serv't,

EZRA LINCOLN.

Hon. S. T. SHUGERT,
Acting Commissioner of Patents.

AUGUST, 1855.

Your amended specification and claim of your application for letters-patent, for artificial palates, has been reëxamined, and in connection with your argument, filed the 30th ult. If the points made out by you against the uses of gutta-percha for artificial palates are correct, then the subject of your application is different from the original application and your remedy is not an amendment of the rejected application, but a withdrawal thereof, and a filing of a new application. If your statement is erroneous, then the rejection of May 19, 1855, holds good, even for your claim restricted.

There appears, consequently, no necessity to enter now into an examination of your alleged invention as restricted by your amendment. Lest by this letter you should, however, not consider yourself invited to file a new application, your attention is called to the article, Caoutchouc, page 105 in Harris' Dictionary of Dental Science, where you will
69 find India-rubber quoted as a material for analogous purposes with yours. Furthermore, the India-rubber you employ must be heated unless you are able to show otherwise, by one of the known vulcanizing processes, and particularly by that patented by Nelson Goodyear, May 6, 1851. The patent of the latter covers, however, all the forms to which his material might be employed, so that to use it for palates would appear as an infringement of his right.

Your artificial model being made of gutta-percha, is unfit to illustrate your invention as recently claimed. As to J. M. Batchelder's patent, the office had peculiar reasons to grant it, bearing no analogy to your case, and if the decision was erroneous such error would not impose upon the office an obligation to reiterate the same.

Under these circumstances, the decision of May 19th, 1855, is adhered to.

JOHN A. CUMMINGS,
(Care of Ezra Lincoln,)
Boston, Mass.

SEPTEMBER 18, 1855.

Yours of the 10th instant, in relation to your rejected application for patent for artificial palates, is received.

The sentence alluded to by you, in the official letter of the 14th ult., originated in the following:

Your first specimen appeared to be made of gutta-percha. In your letter of April 10, 1855, do you not state of what it was made; in your specification you described, as one of the materials used by you, gutta-percha.

At the time of the first rejection, therefore, the office considered your specimen to be made of gutta-percha.

In your argument of July 30th, 1855, you do not say that no gutta-percha entered in the manufacture of your specimen, but at the close of your letter, you say "I send herewith, a more perfect specimen of a set of teeth, although the materials are precisely similar to those of
70 the sample at the office." Under the impression, which as above stated, the office had at the time, nothing else could be inferred from the quoted words, than what was really inferred, that, from want of ready specimens made of India-rubber, you sent one of gutta-percha, yet without deceit, or unfairly, but avowedly, and stating the fact in your letter.

This having been the impression of the office, and as it appears an impression justified by your own words, you will, it is hoped, see in the sentence complained of neither an imputation against you, nor a trespass upon courtesy; but simply remark with reference to the presumed informality of the specimen filed by you.

In this connection, it is added, that a simple statement of yours would have been considered fully equal to the evidence furnished by the affidavits you enclosed. No obnoxious charge having been intended by the office, this explanation, it is hoped, will be found satisfactory.

JOHN A. CUMMINGS,
(Care of Ezra Lincoln,)
Boston, Mass.

To whom it may concern:

This may certify that I, F. A. Bevin, of the city of New Haven, Connecticut, was employed by Dr. John A. Cummings, of Boston, doctor of medicine, dentist by profession, to make samples of India-rubber plates for teeth; that I have made sundry specimens and forwarded them by express to said Cummings; that no particle of gutta-percha was used in the material of which the same was composed; that I have been engaged in the manufacture of vulcanized rubber goods, samples, and fabrics for seven years; that said samples were made by myself, and that from my own knowledge, I declare that no part of either of the samples was gutta percha; that they were vulcanized rubber, and are what are known to manufacturers as hard gum and whalebone gum.

F. A. BEVIN.

71 Personally appeared before me, the above-mentioned F. A. Bevin, and made oath to the above statements.

New Haven, New Haven County, Aug. 30, 1855.

LUCIUS ATWATER,
Justice of the Peace.

Witness:
E. D. ATWATER.

I, John A. Cummings, of Boston, in the county of Suffolk, and State of Massachusetts, on oath depose and say that the specimens of sets of artificial teeth manufactured with India-rubber, and referred to in the within affidavit of F. A. Bevin, were delivered to me as by him stated, and that I delivered one of these specimens to Mr. Ezra Lincoln to be forwarded to the Patent Office as a better sample of the work intended to be done under the specification of my improvements in the mode of making sets of artificial teeth, than the specimen originally furnished when my application for a patent was first filed.

JOHN A. CUMMINGS.

STATE OF MASSCHUSETTS,
County of Suffolk, Mass., ss:
Sworn to before me.

EZRA LINCOLN,
Notary Public.

☞ Will Mr. Shugert please give this letter his personal attention, and oblige his ob't servant,

E. LINCOLN.

BOSTON, *September 10th*, 1855.

DEAR SIR: I wish to call your personal attention to the letter from the office under the date of August 14, having the application of Dr. Cummings for a patent for an improved mode of manufacturing sets of artificial teeth. The letter was written after a second examination
72 of the case, and a second and better model was furnished, substantially the same as the former. I do not desire to call attention to, or to discuss the general views of the letter; but only ask the Commissioner to read a sentence near the above, which is an imputation upon the integrity of my client, and upon that of myself, which is, in these words: "Your additional model being made of gutta-percha, is unfit to illustrate your invention as recently claimed." The allegation made by my client and myself was that the parts stated by the examiner to be made of "gutta-percha," were made of vulcanized India-rubber.

Without the slightest hesitation or qualification, the examiner charges deliberately a joint design to deceive the office.

In a connection of some 16 years with the office I have never before had the slightest intimation of a particle of unfairness in any of my dealings, and if this charge were true, and I was cognizant of the intended fraud, should hold myself entirely unfitted to hold any further correspondence with your Department on any subject. Dr. Cummings and myself have been unable to have an interview upon this subject until within a day or two, owing to his and my own absence from the city. I directed him immediately to substantiate his allegation by proper affidavits, which are herewith enclosed, and which, I think, will be amply sufficient, without comment, to induce the examiner to retract the obnoxious charge, which I know you will deem a proper self-respect on my part must induce me to insist upon.

Dr. Cummings is a gentleman whose character in his profession is of the highest class, and he desires me to say that he feels greatly aggrieved by this attempt to call his honesty in question.

This is the first time in my intercourse with the Department that I have had occasion to charge a lack of courtesy upon the part of the examiner, and I make this communication to yourself, with the
73 entire confidence and trust that the wrong which I feel has been done both to me and my client will be promptly repaired.

Waiting your reply in the premises, and I am, very truly, yours,

EZRA LINCOLN.

Hon. S. T. SHUGERT,
Act'g Commissioner of Patents.

BOSTON, *September 28th*, 1855.

DEAR SIR: Will you please send me the specification of Dr. John A. Cummings' artificial teeth, and oblige

Your ob't serv't,

EZRA LINCOLN.

Hon. S. T. SHUGERT,
Acting Commiss. of Patents.

OCTOBER, 1855.

Agreeable to yours of the 28th ult., you will find enclosed specification for artificial palates and gums.

Dr. JOHN A. CUMMINGS,
(Care of Ezra Lincoln,)
Boston, Mass.

BOSTON, *Jan'y 17th*, 1856.

DEAR SIR: Herewith return the specification of John A. Cummings' imp'ts in the manufacture of sets of artificial teeth, having made a slight verbal amendment, the error in which occurred in copying. I am requested by the applicant in this case to make an appeal to the Commissioner, and would, therefore, request that all the papers may be laid before him.

When the case was prepared the supposition was that the
74 forming the plates and gums of any plastic substance, in which, while plastic, the teeth could be inserted and there held by the hardening of the same, was new.

The original specification, it will be seen, identified the improvement suggested in the amended claim, viz, the improvement in the manufac-

ture of sets of artificial teeth; and notwithstanding the prior use of gutta-percha in this manufacture, I think (it) will be admitted, on reading the disclaimer and amended claim, that there is a patentable distinction.

The gutta percha has been abandoned because it would not withstand the warmth of the secretions and the acids about the mouth; the combination of the mineral or other teeth with India-rubber (to be vulcanized after the teeth are inserted) makes a new article of manufacture which is practically useful and can be afforded at a much cheaper rate than any sets of artificial teeth which can be used successfully.

The question whether there is anything patentable in this case can be determined under this application, and the preamble could be altered to suit the amended claim.

Hoping for a favorable issue in the case, I remain,

Very truly, yours,

E. LINCOLN.

Hon. CHARLES MASON,
Commiss. of Patents.

Ezra Lincoln asks a reconsideration of John A. Cummings' case.

A. L. W. J.

Rec'd Jan'y 19, 1856.

BOSTON, *January 26th*, 1856.

DEAR SIR: Herewith I send a drawing in the case of Dr. John A. Cummings' improvements in the manufacture of sets of artificial teeth, inadvertently left out of the package when his papers were last transmitted to the office.

Very resp. your ob't,

EZRA LINCOLN.

Hon. CHARLES MASON,
Commiss. of Patents.

75 U. S. PATENT OFFICE, *Feb. 5th*, 1856.

SIR: In the matter of appeal by John A. Cummings from the decisions of the examiner, I beg leave to present the following report:

Dr. John A. Cummings' original claim to artificial palates and gums in which the teeth are inserted in one piece of rubber or other elastic material or materials which can be hardened sufficiently for the purpose of mastication, covered, in fact, any elastic substance, gutta-percha being named as one of them.

These substances, with compounds of others, commonly employed to harden them after the teeth, composed of porcelain or the ordinary earthy materials, had been attached, and the gums and palate moulded into shape, submitted to heat and "vulcanized" by baking.

On the first rejection, May 19, 1855, reference was made to gutta-purcha having been used for the same purpose, and the reference was admitted to be correct. Gutta-percha is very generally and properly, I believe, considered an equivalent of caoutchouc or India-rubber, of which there are many varieties.

The propriety of the reference to the previous use of gutta-percha having been admitted, the specification and claim was so amended as to attach particular importance to vulcanized India-rubber. This was again met by reference to Harris' Dictionary of Dental Surgery, where

(p. 105) under the head "Caoutchouc," it is stated Mr. Steans, a surgeon of London, has employed this material prepared by Goodyear's process, or "vulcanized" for artificial palates, &c. Nelson Goodyear's patent of May 6, 1867, foreclosed the claim for vulcanizing or hardening the materials used; and their use, when vulcanized, having been shown by the reference to be old, it does not appear to me that there is room left for a patentable claim.

The argument in appeal that the combination of the mineral or other teeth with India-rubber, to be vulcanized after the teeth are in-
76 serted, makes a new article of manufacture, which is particularly useful, and can be afforded at a cheaper rate, is not to the point.

If the article is not new, as shown by the reference, and the mode of manufacture is not new, also shown by reference to Goodyear's patent, then the remaining argument, affording the articles at a cheaper rate, avails nothing, as no price was set forth or explained, neither could it, under existing practice, form a part of the specification under examination.

In vulcanizing articles made of caoutchouc according to Goodyear's patent above noticed, and others, I believe it is commonly the practice, after compounding the rubber with sulphur and other materials, to mould it to the shape required, inserting all requisite appendages, such as the hinges of a box, wood to be veneered, a gun-barrel to be covered, of the parts of a penknife which is to have a composition handle; all before the article is placed in the oven to be vulcanized; thus removing all claim to novelty of the invention under consideration. And it is accordingly suggested that the patent be finally refused.

Respectfully submitted.

T. R. PEALE, *Examiner.*

To the Hon. CHARLES MASON,
Commissioner of Patents.

Approved:

C. MASON.

U. S. PATENT OFFICE,
6th Feb., '56.

SIR: You are hereby informed that your application for devices in making artificial gums and palates, twice rejected by the examiner, has been referred to a board for revision of the previous actions, which actions, for reasons on file, have been sustained, and are now affirmed.

Respectfully,

JOHN A. CUMMINGS,
(Care of Ezra Lincoln,) *Boston.*

77 BOSTON, *January 17th*, 1859.

DEAR SIR: Will you please send me the specification and one drawing, of John W. Cummings' application for a patent for improvements in artificial plates for teeth and much oblige

Your obedient servant,

EZRA LINCOLN.

Hon. J. HOLT,
Commissioner of Patents.

U. S. P. O., *Jan'y* 30, '59.

SIR: In reply to your letter of January 17th, you are informed that

your case having been acted upon finally by the Commissioner, the papers belong to the office, and the only one which can be returned to you is the drawing, which is accordingly herewith enclosed.

Respectfully,

JOHN A. CUMMINGS,
(Care of Ezra Lincoln,)
Boston, Mass.

No. 3244.—John A. Cummings, of Boston, County of Suffolk, State of Mass.:

Forming artificial palates and gums.—Dentistry.—Oath renewed.

Rec'd	April 12, 1855.
Petition	" " "
Affidavit	" " "
Specification	" " "
2 drawing	" " "
Model	" " "
1 cert. dep., $1	" " "
Caveat	May 14, 1852.

2 examined.
Issue.
3 patented , 185 .
Recorded vol., page
D.

EZRA LINCOLN,
Boston.

78 Rejected 19th May, 1855.

Papers to me June 7th, 1855.
D. EZRA LINCOLN,

3, 4, sp'n ret'd to app'l's	4 August, 1855.
5, 6, rejected II	14 " "
7, 8, letter	17 Sept'r, "
9, 10, sp'c. to app'l's	2 Oct. "
" " office	Jan'y, 1856.
12, rejected by board of ex'r	6th Feb., '56.
13, 14, thin dr. ret. to ag't	Jan'y 20, '59.

The petition of John A. Cummings, of Boston, in the county of Suffolk and State of Massachusetts, respectfully represents that your petitioner has invented certain new and useful improvements in palates, &c., an exclusive property in which he is desirous of having secured to him and his legal representatives by letters-patent, according to law, having paid fifteen dollars into the Treasury of the United States, and complied with all the regulations of the patent act, in such cases made and provided.

Boston, March 1st, 1864.

JOHN A. CUMMINGS.

SIR: I hereby recognize and appoint Joseph Gavett, of Boston, or his accredited agent, or agents, as my agent and attorney, to solicit and

receive letters-patent for my artificial palate; also for withdrawing my application for the same, should it be found necessary; and in general to do all such things in the premises as he may deem to be for my advantage.

Boston, March 1st, 1864.

JOHN A. CUMMINGS.

(J. G. March, 1864. 1 dollar.)

STATE OF MASSACHUSETTS,
County of Suffolk, ss:

On this first day of March in the year 1864, personally appeared before me the above-named John A. Cummings, and made oath that
79 he verily believes himself to be the original and first inventor of the improvement herein specified; that he does not know or believe the same to have ever before been known or used prior to his invention of the same, and that he is a citizen of the United States of America.

JOSEPH GAVETT,
Justice of the Peace.

[5 cts. 5. U. S. int. rev. st. 5. 5.]

BOSTON, *March* 5, 1864.

In the matter of the application of John A. Cummings for patent for improvements in artificial palates, please allow A. Pollok, of Washington, D. C., to act in my stead.

JOSEPH GAVETT.

To the Hon. COMMISSIONER OF PATENTS.

To all persons to whom these presents shall come:

Be it known that I, John A. Cummings, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful improvements in the manner of forming artificial palates and gums used for inserting artificial teeth, and that the following description, taken in connection with the accompanying drawings hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said invention, by which it may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by letters-patent.

The figures of the accompanying plates of drawings represent my improvements: Fig. 1 is a front elevation of a set of artificial teeth and plate, formed by my improved method; Fig. 2 is a view of the lower side of the plate and teeth; Fig. 3 is a central vertical section of the same.

The method hitherto practised of attaching artificial teeth to a metallic plate fitting to the roof of the mouth, is attended with many ob-
80 jections and inconveniences, as the plate being hard and unyielding, naturally hurts the mouth, and in some degree impedes mastication and perfect articulation, while the expense of the metal employed prevents many from availing themselves of the advantages of artificial teeth.

The present invention consists in forming the plate and gums to which the teeth are attached of rubber or some other elastic material, so indurated as to be rigid enough for the purposes of mastication, and pliable enough to yield a little to the motions of the mouth, and in one piece, the teeth being imbedded in the elastic material while the said material

is in a soft condition, and then baked with the gums and plate, so that the teeth, gums, and plate will all be connected, forming, as it were, one piece.

a, *a*, *a*, &c., in the drawings represent the artificial teeth prepared in the usual manner. The plate and gums, *b*, *b*, are formed in one piece, and of rubber, or of rubber and the compounds commonly employed therewith, or of gutta-percha, or, in fact, of any elastic substance which can be reduced to a soft condition and then vulcanized or hardened sufficiently to answer the purpose. The rubber or other material used is first moulded to fit the shape of the mouth and the gums formed, and while soft and pliable the teeth, *a*, *a*, are imbedded in the gums, and as an additional security fastened to the same by small pins, *c*, *c*, Fig. 3.

The teeth, gums, and plate being thus connected, are then baked until the elastic material becomes sufficiently vulcanized, when the process is completed, the plate being hard, and rigid enough for the purposes of mastication, and yet by its elastic nature yielding to the motions of the mouth, while the teeth are firmly imbedded and secured in the gums.

The plate and gums can be colored in any proper manner to imitate nature.

Having thus described my improvements, I shall state my claim as follows:

What I claim as my invention and desire to have secured to me
81 by letters-patent, is forming the plate and gums in which the teeth are inserted in one piece of hard rubber or vulcanite, i. e., an elastic material which can be hardened sufficiently for the purpose of mastication, and retain a portion of its elasticity so as to yield a little to the motion of the mouth, as herein set forth, and for the purposes specified.

JOHN A. CUMMINGS.

Witnesses:
A. POLLOK,
J. L. COOMBS.

U. S. PATENT OFFICE, *April* 7, 1864.

SIR: In the examination of your application for letters-patent for a mode of securing artificial teeth to gum plates it is found that the substance of your present claim is embraced in an application filed by you in 1855, and rejected for want of novelty. It appears that a satisfactory reference was then given to the use of gutta-percha, and a disclaimer made to it by you, while your present claim and specification is broad enough to cover it. Your claim was then confined to what was known as "hard rubber," now called vulcanite, and although three times rejected, it does not appear that this material was ever before used for this purpose—the case of Stearns' vulcanized rubber palate and vellum, to which you were then referred, having no bearing whatever upon your invention.

In justice, therefore, to your rights as an inventor, the office will not object to the admission of a claim limited to the use of this material for this purpose.

The specification and drawings are herewith returned for amendments in particulars noted as defective, and a modification of the claim.

JOHN A. CUMMINGS,
(Care of A. Pollok.)
Present.

WASHINGTON, *April* 12, 1864.

I hereby amend my specification of improvements in artificial
82 palates and gums, by inserting in the fourth line of the claim, between the words "of" and "rubber" the word "hard."

And I also amend my said specification by erasing in the fourth line of the claim the word "other," and by substituting therefor the following: "vulcanites i. e., au."

I also amend said specification by erasing in the fifth line of the claim the words "or materials."

JOHN A. CUMMINGS.

Memorandum of fee paid at U. S. Patent Office:
Inventor—J. A. Cummings.
Invention—Artificial palates.
Date of payment—May 23, 1864.
Fee—$20—Cert.
Solicitor—Pollok.

1864.

No. 43009.—John A. Cummings, of Boston, County of Suffolk, State of Massachusetts:

Artificial gums and palates.
Received March 25, 1864.
Petition— " " "
Affidavit— " " "
Specification—" " "
Drawings— " " "
Model— " " "
Cert. dep.
1 cash, $15, " " "
1 additional fee cert., $20, May 23, 1864.
" " cash.
Examined, Charles G. Page, April 21, 1864.
2 issue—Hays 1. April 28, 1864.
4 patented June 7, 1864, and
Recorded vol. 162, page 383.
Circular, April 30, 1864.

JOSEPH GAVET, *of Boston;* or
A. POLLOK, *Present.*

83 The United States of America, to all to whom these letters-patent shall come:

Whereas John A. Cummings, of Boston, Massachusetts, has alleged that he has invented a new and useful improvement in artificial gums and palates, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presents a petition to the Commissioner of Patents, signifying a desire to obtain an exclusive property in the said improvement, and praying that a patent may be granted for that purpose.

These are therefore to grant, according to law, to the said John A. Cummings, his heirs, administrators and assigns, for the term of seventeen years from the seventh day of June, one thousand eight hundred and sixty-four, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said John A. Cum-

mings in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this seventh day of June, in the year of our Lord one thousand eight hundred and sixty-four, and of the independence of the United States of America the eighty-eighth.

[L. S.]

J. P. USHER,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

D. P. HOLLOWAY,
Commissioner of Patents.

84 *The schedule referred to in these letters-patent, and making part of the same.*

To all persons to whom these presents shall come:

Be it known that I, John A. Cummings, of Boston, in the county of Suffolk and the State of Massachusetts, have invented certain new and useful improvements in the manner of forming artificial teeth, and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said invention, by which it may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by letters-patent.

The figures of the accompanying plates of drawings represent my improvements:

Fig. 1 is a front elevation of a set of artificial teeth and plate formed by my improved method;

Fig. 2 is a view of the lower side and teeth;

Fig. 3 is a central vertical section of the same.

The method hitherto practiced of attaching artificial teeth to a metallic plate fitting to the roof of the mouth is attended with many objections and inconveniences, as the plate, being hard and unyielding, naturally hurts the mouth, and in some degree impedes mastication and perfect articulation, while the expense of the metal employed prevents many from availing themselves of the advantages of artificial teeth.

The present invention consists in forming the plate and gums to which the teeth are attached of rubber, or some other elastic material, so indurated as to be rigid enough for the purposes of mastication, and pliable enough to yield a little to the motions of the mouth, and in one piece, the teeth being embedded in the elastic material while the said material is in a soft condition, and then baked with the gums and plate so that the teeth, gums, and plate will all be connected, forming, as it were, one piece.

85 *a*, *a*, *a*, &c., in the drawings, represent the artificial teeth prepared in the usual manner. The plate and gums, *b*, *b*, are formed in one piece, and of rubber, or of rubber and the compounds commonly employed therewith, or of gutta-percha, or in fact of any elastic substance which can be reduced to a soft condition and then vulcanized or hardened sufficiently to answer the purpose. The rubber or other material used is first moulded to fit the shape of the mouth, and the gums formed, and while soft and pliable the teeth, *a*, *a*, are embedded in the

gums, and, as an additional security, fastened to the same by small pins, *c*, *c*, Fig. 3. The teeth, gums, and plate, being thus connected, are then baked until the elastic material becomes sufficiently vulcanized, when the process is completed, the plate being hard and rigid enough for the purposes of mastication, and yet by its elastic nature yielding to the motions of the mouth, while the teeth are firmly embedded and secured in the gums.

The plate and gums can be cured in any proper manner to imitate nature.

Having thus described my improvements, I shall state my claim as follows:

What I claim as my invention and desire to have secured to me by letters-patent, is—

Forming the plate and gums in which the teeth are inserted in one piece of hard rubber or vulcanite, i. e., an elastic material which can be hardened sufficiently for the purpose of mastication, and retain a portion of its elasticity, so as to yield a little to the motion of the mouth, as herein set forth, and for the purposes specified.

JOHN A. CUMMINGS.

Witnesses,
A. POLLOK,
J. L. COOMBS.

The United States of America to all to whom these letters-patent shall come:

Whereas John A. Cummings, of Boston, Massachusetts, (he
86 having assigned his right, title, and interest in said improvement to the Dental Vulcanite Company of the same place,) has alleged that he has invented a new and useful improvement in artificial gums and palates, (for which letters-patent were issued to him, dated June 7, 1864, which letters having been surrendered by him, the same have been cancelled and new letters ordered to issue to said Dental Vulcanite Company, on an amended specification,) which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor and discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose.

These are, therefore, to grant according to law to the said Dental Vulcanite Company, their successors, or assigns, for the term of seventeen years from the seventh day of June, 1864, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said John A. Cummings, in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand at the city of Washington this tenth day of Jan'y, in the year of our Lord one thousand eight hundred and sixty.

five, and of the independence of the United States of America the eighty-ninth.

[L. S.]

J. P. USHER,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

D. P. HOLLOWAY,
Commissioner of Patents.

87 *The schedule referred to in these letters-patent, and making part of the same.*

To all to whom these presents shall come:

Be it known that I, John A. Cummings, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful improvements in plates for artificial teeth, and that the following description, taken in connection with the accompanying plate of drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from all others of a similar class, together with such parts as I claim and desire to have secured to me by letters-patent.

The method hitherto practiced of attaching artificial teeth to a metallic plate fitting to the roof of the mouth is attended with many objections and inconveniences, as the plate, being hard and unyielding, naturally hurts the mouth, and in some degree impedes mastication and perfect articulation, while the expense of the metal employed prevents many from availing themselves of the advantage of artificial teeth.

My present invention consists in forming the plate to which the teeth, or teeth and gums, are attached of hard rubber or vulcanite, so-called, an elastic material possessing and retaining in use a sufficient rigidity for the purpose of mastication, and at the same time being pliable enough to yield a little to the motions of the mouth.

My manner of making and using said hard-rubber plates is as follows: A wax or plaster impression of that part of the mouth which the plate is to fit is first taken, and from that impression a plaster cast is made which will exactly represent that part of the mouth from which the first impression was taken. A plate of wax of the general form
88 of the intended rubber plate is then made from this plaster cast, and around the front of this wax plate a vertical ridge of wax is fixed about in the position which the teeth are to occupy, in the same manner as is generally practiced in the construction of gold plates for artificial teeth. A plaster mould is then made from this wax plate, filling it both on the upper and under side, which plaster mould is known as the articulator, and is constructed so as to hold the wax plates securely and conveniently for manipulation, leaving the front edge, where the teeth are to be applied, exposed and accessible. The figures of the accompanying plate of drawings represents my improvements.

Fig. 1 is a front elevation of a set of artificial teeth and plate formed by my improved method;

Fig. 2 is a view of the lower side of the plate and teeth;

Fig. 3 is a central vertical section of the same.

The teeth shown in the drawings are gum teeth, so called, i. e., having porcelain gums formed in one piece with the teeth and properly colored, and they are shown each one separate. But they may be without por-

celain gums, in which case, the palate and gums will be formed in one piece of hard rubber, and if gum teeth, they may be formed in groups of two or more as desired. My mode of operation is the same whether gum teeth or teeth alone are used or separate or in groups.

The teeth are set in place in the wax plate and adjusted to the proper distance and fulness in the same manner as is generally practiced in setting teeth in gold plates. In the drawing the gum teeth are made separate and marked A, A. The wax plate and gums with the teeth adhering thereto is now set upon the original plaster cast of the corresponding part of the mouth, and plaster is poured all around up to about the lower edge (as it lies) of the wax plate; the margin or outlying surface of plaster is oiled or varnished and plaster poured over the whole, forming a complete mould of the plate and teeth. Upon the opening of this mould the wax is warmed and removed so as to leave the teeth adhering in the plaster mould in exactly the relative position they are to occupy in the hard-rubber plate.

89 The teeth are provided with pins, C, C, projecting therefrom in such manner that the rubber which is to constitute the plate will close around them, and by means of them hold or secure the teeth permanently in position. The plaster mould, with the teeth adhering therein as just described, is now filled with soft rubber, a little at a time, pressed in with the finger or in other convenient way; and care is to be taken that the rubber is made to completely fit into the cavities and around the protuberances, (including the pins,) and is fitted in to the thickness or depth desired to form the plate. I then lock the rubber plate in position by shutting the other half of the plaster mould over it to insure its retaining its exact form while warming, and then heat or bake it in an oven, or in any other suitable way. The soft rubber or gum so inserted in the mould is to be compounded with sulphur, rubber, &c., in the manner prescribed in the patent of Nelson Goodyear, dated May 6th, A. D. 1864, for making hard rubber, and is to be subjected to sufficient heat to vulcanize or harden it, substantially as directed in that patent. It is also to be colored in imitation of the natural gums by mixing it with vermillion or other suitable coloring matter while in the soft state. After the plate has been heated sufficiently to harden it or convert it into hard rubber or vulcanite, so called, the mould is removed and the plate is polished ready for use.

Having thus described the method I have used for making and using said hard rubber or vulcanite plates, what I claim, and desire to secure by letters-patent, is the plate of hard rubber or vulcanite, or its equivalent, for holding artificial teeth or teeth and gums, substantially as described.

JOHN A. CUMMINGS.

Witnesses,
JOSEPH GAVETT,
SAMUEL M. BARTON.

90 REISSUE NO. 1904.

The United States of America to all to whom these letters-patent shall come:

Whereas John A. Cummings, of Boston, Massachusetts, (he having assigned his right, title, and interest in said improvement to the Dental Vulcanite Company of the same place,) has alleged that he has invented a new and useful improvement in artificial gums and palates, (for which

letters-patent were issued to him, dated June 7, 1864; the same surrendered and new letters ordered to issue to the Dental Vulcanite Company, dated January 10, 1865; which second letters having been surrendered by them, the same have been cancelled, and new letters ordered to issue to them on an amended specification,) which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; said assignees having paid in to the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose.

These are therefore to grant, according to law, to the said Dental Vulcanite Company, their successors, or assigns, for the term of seventeen years, from the seventh day of June, one thousand eight hundred and sixty-four, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said John A. Cummings in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office has been hereunto affixed.

91 Given under my hand at the city of Washington, this twenty-first day of March, in the year of our Lord one thousand eight hundred and sixty-five, and of the independence of the United States of America the eighty-ninth.

[L. S.]

J. P. USHER,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

D. P. HOLLOWAY,
Commissioner of Patents.

The schedule referred to in these letters-patent and making part of the same.

To all persons to whom these presents shall come:

Be it known that I, John A. Cummings, of Boston, in the county of Suffolk, and State of Massachusetts, have invented certain new and useful improvements in plates for artificial teeth; and that the following description, taken in connection with the accompanying plate of drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from all others of a similar class, together with such parts as I claim and desire to have secured to me by letters-patent.

The method hitherto practised of attaching artificial teeth to a metallic plate fitting to the roof of the mouth, is attended with many objections and inconveniences, as the plate being hard and unyielding, naturally hurts the mouth, and, in some degree, impedes mastication and perfect articulation; while the expense of the metal employed prevents many from availing themselves of the advantages of artificial teeth.

My present invention consists in forming the plate to which the teeth

and gums are attached, of hard rubber, or "vulcanite," so-
92 called, an elastic material possessing and retaining in use sufficient rigidity for the purpose of mastication, and, at the same time, being pliable enough to yield a little to the motions of the mouth.

My manner of making and using said hard-rubber plates is as follows: A wax or plaster impression of that part of the mouth which the plate is to fit is first taken, and from that impression a plaster cast is made, which will exactly resemble that part of the mouth from which the first impression was taken. A plate of wax, of the general form of the intended rubber plate, is then made from this plaster cast, and around the front of this wax plate a vertical ridge of wax is fixed, about in the position which the teeth are to occupy, in the same manner as is generally practiced in the construction of gold plates for artificial teeth. A plaster mould is then made from this wax plate, fitting it both on the upper and under side, which plaster mould is known generally as the articulator, and is constructed so as to hold the wax plate securely and conveniently for manipulation, leaving the front edge, where the teeth are to be applied, exposed and accessible. The figures of the accompanying plate of drawings represent my improvements.

Fig. 1 is a front elevation of a set of artificial teeth and plate, formed by my improved method;

Fig. 2 is a view of the lower side of the plate and teeth;

Fig. 3 is a central vertical section of the same.

The teeth shown in the drawings are gum teeth, so called, that is, having porcelain gums formed in one piece with the teeth, and properly colored; and they are shown each one separate. But they may be without porcelain gums, in which case the palate and gums will be formed in one piece of hard rubber; and, if gum teeth, they may be formed in groups of two or more, as desired. My mode of operation is the same, whether gum teeth or teeth alone are used, or separate, or in groups. The teeth are set in place in the wax plate, and adjusted to the proper distance and fulness in the same manner as is generally practiced in setting teeth in gold plates. In the drawing the
93 gum teeth are made separate, and marked *a*, *a*. The wax plate and gums, with the teeth adhering thereto, is now set upon the original plaster cast of the corresponding part of the mouth, and plaster is poured all around up to about the lower edge (as it lies) of the wax plate; the margin or outlying surface of plaster is oiled or varnished, and plaster poured over the whole, forming a complete mould of the plate and teeth. Upon the opening of this mould the wax is warmed and removed, so as to leave the teeth adhering in the plaster mould in exactly the relative position they are to occupy in the hard-rubber plate. The teeth are provided with pins, *c*, *c*, projecting therefrom in such manner that the rubber, which is to constitute the plate, will close around them, and by means of them hold secure the teeth permanently in position. The plaster mould, with the teeth adhering therein, as just described, is now filled with soft rubber, a little at a time, pressed in with the finger, or in any other convenient way; and care is to be taken that the rubber is made to completely fit into the cavities and around the protuberances, including the pins, and is filled in to the depth or thickness desired to form the plate. I then lock the rubber plate in position by shutting the other half of the plaster mould over it, to insure its retaining its exact form while warming, and then heat or bake it in an oven, or in any other suitable way. The soft rubber or gum, so inserted in the mould, is to be compounded with sulphur, rubber, &c., in the manner described in the patent of Nelson Goodyear, dated May

6, A. D. 1851, for making hard rubber, and is to be subjected to sufficient heat to vulcanize or harden it, substantially as directed in that patent. It is also to be colored in imitation of the natural gums, by mixing it with vermilion or other suitable coloring matter, while in the soft state. After the plate has been heated sufficiently to harden it, or convert it into hard rubber or vulcanite, so called, the mould is removed, and the plate is polished ready for use.

Having thus described the method I have used for making and using said hard rubber or vulcanite plate, what I claim herein, and desire to secure by letters-patent, is—

94 The plate of hard rubber or vulcanite, or its equivalent, for holding artificial teeth, or teeth and gums, substantially as described.

JOHN A. CUMMINGS.

JOSEPH GAVETT,
SAMUEL M. BARTON,
Witnesses.

SCHEDULE B.

STATE OF NEW YORK,
City and County of New York, ss:

On this tenth day of March, A. D. 1856, before the subscriber, a commissioner of deeds, personally appeared the within-named Robert Haering and made solemn oath that he verily believes himself to be the original and first inventor of the mode herein described for inserting artificial teeth by the introduction of vulcanized hard India-rubber, and that he does not know or believe the same was ever before known or used; that he is a citizen of the United States.

L. PITKINS,
Com. of Deeds.

NEW YORK, *March* 6, 1856.

To all whom it may concern:

Be it known that I, Robert Haering, of the city and county of New York, State of New York, have invented a new and improved mode of inserting artificial teeth, and I do hereby declare the following is a full and exact description, to wit:

The nature of my invention consists in the introduction and application of vulcanized hard India-rubber in constructing the base to artificial teeth, viz, artificial sets of teeth.

To enable others skilled in the art to make use of my inven-
95 tion, I will proceed to describe its construction and operation, reference being had to the enclosed drawings making a part of this specification, in which Figure 1 is a perspective view of the cast of the mouth in plaster; Fig. 2, teeth on a waxed base fitted to a plaster cast as they should be arranged for the mouth; Fig. 3 represents the teeth on the wax imbedded in plaster to hold them in place when the wax is removed. This plaster is set. I cover the whole teeth with plaster, as represented in Fig. 4. When sufficiently hard the mould is separated, and the wax exchanged for a preparation of rubber, when the parts of the mould are replaced. This is placed in a steam oven, and is subjected to a heat of 280° to 300° for the space of six to eight hours' time. When taken out, all is finished; the teeth will be found to be beautifully set in hard rubber, a material possessing advantages over anything in use.

What I claim as my invention, and desire to secure by letters-patent, is the application of vulcanized hard India-rubber as a new material, and a new mode *to* constructing a base to artificial teeth, viz, artificial sets of teeth.

ROBERT HAERING.

Witness:
L. PITKIN.
W'M DIXEY.

Cancelled 12 August, 1856.
Endorsed: "Received and filed March 25th, 1856.—L. F. W., 3566."

PHILADELPHIA, *April* 5, 1856.

Hon. Judge MASON, *Commissioner.*

DEAR SIR: The enclosed has been delayed in consequence of a letter to Mr. H. not reaching him.

As the patent is in Mr. Haering's name, and he wishes me to attend to all the business for him, a power of attorney is necessary, and I therefore forward it, regretting that it has been delayed so long.

96 I shall feel under great obligations to you if you will interest yourself in this case, so as there shall be no unnecessary delay in the grant of letters-patent.

Hoping that you are well, I have the honor to be your obedient servant,

J. B. WHEAT,
Dentist, 433 Walnut Street.

Power of attorney.

Know all men by these presents that I, Robert Haering, of the city, county, and State of New York, have made, constituted, and appointed, and by these presents do make, constitute, and appoint Jerome B. Wheat, of Philadelphia, Pa., my true and lawful attorney, for me and in my name, place, and stead, and as my agent to receive and conduct all correspondence which may be necessary in relation to a certain application for using hard India-rubber for the teeth instead of gold, and to receive the letters-patent which may be granted for said invention, and to receive any and all returnable money from the Commissioner of Patents, Washington, D. C., giving and granting unto my said attorney full power and authority to do and perform all and every act and thing whatever requisite and necessary to be done in and about the premises, as fully to all intents and purposes as I might or could do if personally present, with full power of substitution and revocation, hereby ratifying and confirming all that my said attorney or his substitute shall lawfully do or cause to be done by virtue hereof.

In witness whereof I have hereunto set my hand and seal the fourth day of April, in the year one thousand eight hundred and fifty.

ROBERT HAERING.

Sealed and delivered in presence of—
WILLIAM DIXEY.

97 STATE OF NEW YORK,
City and County of New York, ss:

Be it known that on the fourth day of April, one thousand eight hun-

dred and fifty-six, before me, Lucius Pitkin, a notary public in and for the State of New York, duly commissioned and sworn, dwelling in the city of New York, personally came Robert Haering, to me known, and acknowledged the above letter of attorney to be his free act and deed.

[NOTARIAL SEAL.] L. PITKIN,
Notary Public.

(Endorsed:) "Robert Haering to Jerome B. Wheat. Power of attorney. Filed 11th of April, 1856." "3566."

PHILADELPHIA, *April* 21, 1856.

Hon. Judge MASON,
Commissioner of Patents, Washington, D. C.

DEAR SIR: A letter from Mr. Shugert informs me that Haering's claim cannot be admitted, and refers me to the articles on gutta-percha, from which reference they have rejected John A. Cummings' application for the same claim.

First, permit me to inform you of the nature of Mr. Cummings' movements. He was informed by a workman in the shop with Mr. Haering of what was going on in reference to Mr. Haering being about to get up teeth in this way. Mr. Haering, not mistrusting anything wrong, got them up a set, and assisted the workmen in getting up a number of sets at various times until he heard what Mr. Cummings' design was, after which he refused to show or assist them any more. This was after Mr. H. had been experimenting a long time, for he had been some years moving in this thing. Now, this is all Mr. Cummings knows
98 about this discovery, and he has shown himself anything but a man in the course he has taken. It was told Mr. H. that he had taken out a caveat, but I could not believe it.

Mr. Haering commenced in this before Goodyear left this country for Europe. He was then in his employ, and has been until within the last year. He told Mr. Goodyear what he could do, and Mr. G. referred him to me if he required assistance. He is the bona-fide discoverer of this valuable mode of inserting teeth, and, with my assistance, I believe it is brought to perfection.

I am not a little surprised that in your office it is seen to come under the head of gutta-percha, which it no more resembles in any particular than the pen I now use resembles the paper I write on; nor does the specification show that any of the process of preparing the rubber resembles that by which the preparation of gutta-p. is done. All gutta-percha is simply warmed with hot water, and it requires a heat of from 110° to 150° to soften it. In this way they shape as they wish it. It is very elastic, and has to be supported by framework, which hold the teeth also. It has been tried by dentists in all parts of the country, and, so far as I am acquainted, it is considered worse than the greatest of humbugs. It is only the inexperienced who have used it, for it shows for itself, to those who are familiar with the principles that govern things, it is not fit to put in any mouth, nor will it keep its form. Then it has to be four times as thick on the roof of the mouth as any other substance. Hot drinks displace it. This is the nature of g.-percha. It has no resemblance to India-rubber in its crude state, nor are its chemical or mechanical properties the same. India-rubber in its crude state, when exposed to the action of hot water, does not lose its elastic properties, and can be moulded.

But though these gutta-percha preparations are all from the article in the crude state, this is not the case with our hard rubber, which you will

observe by reference to the specification, is secured in a plaster form, and subjected to a heat of 300° for seven or eight hours' time in a
99 steam oven. It is by this process that it is changed to the state of the hard or firm substance, and as the teeth are firmly imbedded in this, they are stronger by far than by any other mode. No metal framework is required as in the gutta-percha, and it is impossible for it to be in the slightest degree affected by any heat taken into the mouth. It has been about eight years since Truman, in London, introduced the gutta-percha. It has had its run, but it has run among fools only. The first case I saw my only thoughts were these:

"How could it be possible for a dentist, or one who is fit to be called one, to think of using such a substance." Still, plenty have tried it only to abandon it in disgust. I do not know as you will consider that there is any neglect in reference to this case, but it appears to me that if you ever had a case free from all and every infringement on others' rights, this one is.

That if there ever was a useful claim this is one; while I have shown the other is a most valueless one, and from a foreign land. What, then, is the position in which you place us? If the gutta-percha trash of England moves this way, with his patent granted at our capital, we are at once subject to an injunction, no matter how palpably absurd the principle. He is first, and that which is known to be one of the most valuable discoveries of the age, must be thrown to the wind to give place to a thing which is worse than nothing.

More; the bold, industrious American citizen who has toiled for years, and at last discovered what he knows is for the happiness of his fellow-citizens, and withal that to support himself and family from degradation and want, must suddenly open his eyes to what? I want only what I have a right to ask. Give us this, and let the worthless pass.

I take the liberty to enclose in this letter one of my advertisements, with the view to show you my confidence in the article, as well as to enable you to see that this invention possesses advantages of the highest kind over all other modes, and I said nothing but what I can sustain.

And now I will end this long and hastily-written letter, hoping
100 that I have said nothing but what will be received, as intended, in the most friendly sense; and with the highest regard to your happiness and prosperity, am truly and respectfully, yours,

J. B. WHEAT.

Hon. Judge MASON, *Commissioner.*

P. S.—The above is written with the view of calling the attention of the office to what appears to be a mistake or oversight in reference to this matter, and not with any desire or intention of forfeiting the right of withdrawal.

Yours,

J. B. WHEAT.

The great discovery in dental science.—Artificial teeth free from the common objections.

The only material appropriate for the base to artificial sets of teeth is the vulcanized hard rubber, as introduced by J. B. Wheat. It is free from the following objectionable features which exist in teeth inserted on gold plate, namely, great weight, imperfect fitting of the plate to the mouth, metallic taste, and want of cleanliness and strength

where the teeth unite with the metal. No force in masticating can injure them.

J. B. WHEAT,
433 *Walnut street, (a little west of Broad,) Philadelphia.*

N. B.—This is an entirely different article from the gutta-percha, which is found so defective.

(Endorsed:) "R. Haering to office. Filed 23d April, 1856. 3566½. Argument."

3566.

The specification and claim of your application for L. P. for artificial palates and gums have been examined.

101 You are referred to the article "Gutta percha as a base for artificial teeth" in the American Journal of Dental Science, series 2, vol. 2, p. 332, and to Delabare's artificial palates and gums described in Dinglar's Polytechnic Journal, vol. 122, page 239, wherein you will find your device anticipated.

On these references an application of John A. Cummings for patent for artificial palate and gums, prepared from hard vulcanized rubber, has been rejected, May 19, 1855, and the rejection confirmed by a board of examiners on February 6, 1856. Your claim can therefore not be admitted.

ROBERT HAERING,
(Care of Dr. J. B. Wheat, dentist,)
Philadelphia, Pa.

(Endorsed:) "Office to R. Haering, April 18, 1856. I. Rejection. 3566–1.

24th.] 3566–3.

APRIL, 1856.

Your argument against the rejection of your application for patent for artificial teeth is received and will be duly considered upon your renewing your oath or abandoning your right of withdrawal, agreeably to the enclosed rules.

The specification is returned. As to your plea of a mistake or oversight on the part of the office, your attention is called to the fact that you overlook and do not notice at all the reference given you to Delabare's artificial palates.

ROBERT HAERING,
(Care of Dr. J. B. Wheat, dentist,)
Philadelphia, Pa.

(Endorsed:) "Office to R. Haering, 21 April, '56. 3566–3."

102 To the Commissioner of Patents.

SIR: I hereby withdraw my application for a patent for artificial teeth, now in your office, but I request that twenty dollars be refunded to me agreeably to the act of Congress in such case made and provided.

J. B. WHEAT,
Attorney for R. Haering.

WASHINGTON, *April* 29, 1857.

PATENT OFFICE, 185 .

Please date, sign, and return the above receipt and withdrawal, when twenty dollars will be refunded to you. As the money can be paid only in specie you are requested to state distinctly whether it shall be remitted in gold by mail, or paid to your order at this office. It can be refunded only in one of these two methods.

COMMISSIONER OF PATENTS.

(Endorsed:) "Withdrawal. Filed April 29, '57."

PHILADELPHIA, *May* 13, 1856.

Hon. Judge MASON, *Commissioner.*

DEAR SIR: Having been absent from the city, have just received yours of April 30th.

I found the journal referred to in the Astor library, New York City. The article is in German. The writer, after speaking of the preparation as being composed of gutta-percha combined with some of the porcelain glass, describes its qualities and shows it to be entirely unfit for filling or inserting teeth. According to the description, it is far inferior to the article referred to in my former letter. He pronounces it worthless.

It is very, very evident that I am blind on this subject, for I am
103 unable to see the slightest bearing in these references to our hard-rubber invention which we present. There is no similarity in the mode of making the two articles, nor can there be. The article of g.-percha requires a different process entirely from that which we take to produce the hard rubber in this form. While the one is proved to be a valuable article, the other is, and must have to be, entirely worthless.

I know that we are in possession of an original and most valuable principle, but what the difficulty is to our securing it by letters-patent I am at a loss to understand, and must again avail myself of the privilege given in your circular, and ask if there is not a mistake or oversight on the part of the office in reference to this claim.

If it is otherwise, and you still adhere to the necessity of my submitting to a second examination, I must withdraw the application.

Truly and respectfully, yours,

J. B. WHEAT.

P. S.—Mr. Haering is a party with Mr. Goodyear in the European right for using the plaster forms as used in the process, and as described in the specification.

J. B. W.

(Endorsed:) "R. Haering to office. Filed 15 May, '56. 3566–4."

3566–5.

MAY, 1856.

Yours of the 13th instant against the rejection of your application for patent for artificial teeth is received, and will be acted upon as soon as, agreeably to the rules, you return the O. specification sent you on the 24th, and renew your oath.

ROBERT HAERING,
(Care of Dr. J. B. Wheat, dentist,)
Philadelphia, Pa.

(Endorsed:) "Office to Haering, 16 May, '56. 3566–5."

104 PHILADELPHIA, *May* 21, 1856.

Hon. Judge MASON, *Commissioner.*

HONORED SIR: The two references together, on which Haering's claim is rejected, afford two preparations of gutta-percha, not hard rubber. There is nothing in the two which resembles in any particular the other. They are not chemically the same, nor can the same process prepare one which is required to prepare the other.

The gutta-percha, from the nature of the article, softens when exposed to the hot liquids which pass through the mouth, under the same principle that it is softened when moulded for the same, and can never be a fit substance to enter the human mouth in consequence, if it had no other objections, which it has, quite as important as this, but it is not requisite for me to name them.

Our specification represented the process required to produce the hard rubber, which is quite a different thing from softening a preparation of any substance in hot water, and moulding it to a form.

We have not been able to see any analogy between that which is presented in our claim and the references. In consequence I have used the privilege given for pointing out what I believe to be an oversight or neglect on the part of the office. All my communications to you rest on this point, which if seen on the part of your office, you promise cheerfully to correct. It is just that this is settled before I decide on submitting to a second examination.

If you wish further evidence I can send you some of the preparation of gutta-percha, such as is said to be the best article compounded, and which is used by a greenhorn occasionally. By placing the two in hot water you will require no further evidence, for the one will readily soften, while the other will not be affected.

105 It is on sale at the dental establishment of Jones, White & McCurdy, Arch street, in this city.

I am, dear sir, very truly yours,

J. B. WHEAT.

(Endorsed:) "R. Haering to office. Filed 26 May, '56." "3566–6. Additional argument."

"3566–7."

MAY, 1856.

In answer to yours of the 21, you are simply invited to better examine the references given you on the 18th ult., especially the case of John A. Cummings, rejected May 19, 1855. You will see there plainly that the privilege you claim does not apply to your case. The rejection of the 16th inst. is therefore adhered to.

ROBERT HAERING,
(Care Dr. J. B. Wheat, dentist,)
Philadelphia.

(Endorsed:) "Office to R. Haering, 25 May, '56." "3566–7."

NEW HAVEN, *July* 5, 1856.

Hon. Judge MASON,
Commissioner of Patents.

HONORED SIR: Mr. Haering will alter his claim, and ask in favor of his process of a new mode of uniting porcelain teeth to vulcanized hard

rubber, and describing the form of the teeth necessary to be used
106 by this mode of inserting. Is he entitled to make this alteration in his papers?

Yours, very respectfully,

J. B. WHEAT.

(Endorsed:) "R. Haering to office. Filed 8 July, '56." "3566-9."

"3566-9."

JULY, 1856.

In answer to yours of the 5th inst., in reference to your rejected application for patent for artificial teeth, you are referred to section 38 of the enclosed rules.

ROBERT HAERING,
(Care of Dr. J. B. Wheat, dentist,)
Philadelphia, Pa.

(Endorsed:) "Office to R. Haering, 8 July, 56." "3566-9."

NEW HAVEN, CONN., *August* 9, 1856.

Hon. Judge MASON,
Commissioner of Patents.

SIR: Mr. Haering has made his claim less broad, and altered his specification by writing it out anew; also, adding two more drawings to make it more full and comprehensive.

Supposing that these changes in the papers will prevent the necessity of any evidence on the Cummings' reference, or anything farther in respect to the gutta-percha base, I have deferred anything on those points.

Hoping that these papers are right in all respects with your rules,
I am, very respectfully, yours,

J. B. WHEAT.

P. S.—I shall be in N. H. until October, and wish you to have
107 the kindness to direct all papers to me here up to that time.

J. B. WHEAT,
New Haven, Conn.

(Endorsed:) "R. Haering to office. Filed 12 August, '56." "3566-10."

"3566-11."

AUGUST, 1856.

Yours of the 9th instant, with reference to your rejected application for letters-patent for artificial teeth, is received.

Your amended specification cannot be considered as such consistently with the thirty-eighth and thirty-sixth sections of the rules sent you on the 8th ultimo. That your specification is amended in material parts is evident on the simple fact that you found it necessary yourself to file additional drawings. Your model does not show the conformation of teeth you now describe, and this alleged improvement has nothing to do with the material of the base. Your amendments falling thus within the scope of amendments inadmissible under the rules. You are still at liberty to withdraw your original application, or to insist upon its re-examination with proper amendments, or without. Your new claim,

however, cannot be examined but under a new fee upon a new application.

ROBERT HAERING,
(Care of J. B. Wheat, dentist,)
Phila., Pa.

(Endorsed:) "R. Haering to office, 14 August, 1856." "3566–11."

108 STATE OF NEW YORK,
City and County of New York, ss:

On this seventh day of August, A. D. 1856, before the subscriber, a commissioner of deeds, personally appeared the within-named Robert Haering, and made solemn oath that he verily believes himself to be the original and first inventor of the mode herein described of inserting artificial teeth by the introduction of vulcanized hard India-rubber, and that he does not know or believe the same was ever before used, and that he is a citizen of the United States.

L. PITKIN,
Com. of Deeds.

I hereby amend my specification by writing out another paper anew.

NEW YORK, *March* 6, 1856.

To all whom it may concern:

Be it known, that I, Robert Haering, of the city of New York, in the county of New York and State of New York, have invented a new and improved mode of inserting artificial teeth, and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in a new mode of inserting porcelain teeth to vulcanized hard India-rubber, which forms mouth-plates, or what is termed the base to whole or partial sets of teeth.

To enable others skilled in the art to make and use my invention, I proceed to describe its construction and operation:

I make the teeth in the usual manner, with the exception of their form, which is to groove the sides and ends, sometimes adding a cavity to the sides extending a little out of the groove without passing entirely through the tooth.

109 Fig. 1. The accompanying drawing is a perspective view of a plaster cast of the upper jaw;

Fig. 2. The same cast with a set of teeth set in wax resting upon it.

The fronts of this set of teeth we now imbed in plaster, as represented in Fig. 3. This plaster to support the teeth forms the section of the mould as seen in Fig. 4.

I now cover all this as seen in Fig. 3, and in a bed of plaster one inch in depth, as represented by Fig. 5. Pins of small wire are run through the mould to hold the parts in place. This mould is now taken apart, and the top section is represented in Fig. 6.

The wax that the teeth are set in is now changed for the compound, which is to form the rubber base, and the parts of the mould put in their place, closed tight and placed in a steam heater, and subjected to from six to eight hours heat of from 280° to 300°; when taken out the process is complete.

What I claim as my invention, and desire to secure by letters-patent,

is the process of a new mode of uniting porcelain teeth to vulcanized hard India-rubber, as within described.

ROBERT HAERING.

Witnesses—
L. PITKIN,
W'M DIXEY.

(Endorsed:) "Robert Haering. Amended application, filed 12 August, 1856." "3566–11."

NEW HAVEN, CONN., *Sept.* 10, 1856.

Hon. Judge MASON,
Commissioner.

SIR: Some weeks since, I forwarded to you Mr. Haering's speci-
110 fication amended, together with the original papers. In doing this I adhered to the rules laid down in your circular as I understood them. Mr. H. is anxious to sell his invention, which he cannot do until the patent is had, and as he is a person of no means, it is of consequence to him to know what he can expect. If, therefore, you would interest yourself in the case, so as to have it brought to an early close, I shall feel that you have conferred a great favor, and shall hold it in grateful remembrance.

Very respectfully, yours,

J. B. WHEAT.

P. S.—You will notice that it is only on the process that he feels any interest; all else he will forego.

J. B. W.

(Endorsed:) "R. Haering to office, filed 12th Sept., '56." "3566–12."

3566–13.

SEPTEMBER, 1856.

In answer to yours of the 10th inst., with reference to your rejected application for patent for artificial teeth, you are referred to the official letter of the 14th ult., directed to you, care of Dr. J. B. Wheat, Philadelphia, Pa.

ROBERT HAERING,
(Care Dr. J. B. Wheat,)
Phila., Pa.

(Endorsed:) "Office to R. Haering, 13 September, '56." "3566–13."

111 3566.
No.
Robert Haering of New York,
State of New York.
Artificial teeth, oath renewed.
First letter, 1st August, 1855.
Received March 25, 1856.

Petition,	"	"
Affidavit,	"	"
Specification,	"	"
2 drawings,	"	"
Model,	"	"

Cert. dep.
1 cash $30, March 25, 1855.
Examined,
Cash to attorney,
April 29, 1857.
2 issue.
4 patented. , 185 .
Recorded vol. , page .

Care Dr. J. B. WHEAT, dentist,
Phila., Pa.

Ex'd, A. T.

D.

Rep't to exam'r, 17 April, '56.
1. Rejected, 18 "
2. 3. Spec'n to appl't, 24 "
4. 5. Letter, 16 May, "
6. 7. 26 " "
8. 9. Letter with rules, 8 July, "
10. 11. Letter, 14 Aug., "
12. 13 Do 13 Sept., "

WASHINGTON, D. C., *October* 28, 1868.

To the Hon. Commissioner of Patents.

SIR: I herewith enclose specification relating to R. Haering's
112 imp't in "mounting" artificial teeth, with fifteen dollars as first fee.

It is requested that the specimen filed March 25th, 1856, may be applied in this case.

Very respectfully, yours,

H. HOWSON,
Att'y for R. Haering.

To the Commissioner of Patents:

The petition of Robert Haering, of Melrose, Westchester County, New York, (now residing in Montreal, Canada,) respectfully represents that your petitioner has invented a new mode of mounting artificial teeth, which he verily believes has not been known or used prior to the invention thereof by your petitioner. He therefore prays that letters-patent of the United States may be granted to him therefor, vesting in him and his legal representatives the exclusive right to the same upon the terms and conditions expressed in the act of Congress in that case made and provided; he having paid fifteen dollars into the Treasury and complied with the other provisions of the said act. And he hereby constitutes and appoints Henry Howson, of the cities of Philadelphia and Washington, (or his duly-authorized agent,) his lawful attorney, with power to alter and modify the specification, to sign the drawings, to alter the same, to substitute other specifications or drawings as he may deem expedient, to do all other acts necessary in prosecuting this application and to receive and transmit the patent when granted.

Signed at New York, this 16th day of October, 1868.

ROBERT HAERING.

[50 cts. U. S. rev. stamp, 50 cancelled.]

To all whom it may concern:

Be it known that I, Robert Haering, of Melrose, Westchester
113 County, New York, now residing in Montreal, Canada, have invented an improvement in mounting artificial teeth, and I do hereby declare the following to be a full, clear, and exact description of the same. My invention relates to an improvement in securing artificial teeth upon bases or plates of hard or vulcanized rubber or other gum.

In order to enable others skilled in the art to practise my invention, I will now proceed to describe the manner of carrying it into effect.

A plaster cast of the mouth to which the teeth are to be fitted is first made. A coating of wax corresponding in shape and thickness to the base required is then applied to the cast and round the bases of the teeth which are thus held in their proper position. The teeth and base are now covered with plaster, which is applied in a soft state, but soon hardens, forming the second division of a mould, the other part of which is the cast first made. After the portion of the mould last made has hardened, the two divisions are separated, the wax is removed, and prepared rubber is substituted for the same.

The sections of the mould being brought together so as to force the gum into all the interstices formerly occupied by the wax, the mould is then placed in an oven and subjected to heat for such length of time as may be necessary to harden the gum. When the operation is complete the plaster is broken away, and the teeth will be found securely "set" or "mounted" on a base of gum, which is hard, tough, corresponds in shape to the waxbase first made, and possesses many advantages over bases made of ordinary materials. Without here claiming broadly the application of hard rubber or gum as a base for artificial teeth, I claim as my invention, and desire to secure by letters-patent, artificial teeth having gum bases to which the teeth are secured and described: that is by "setting" the teeth in prepared gum on a mould, embedding the whole in plaster, and hardening the gum by the application of heat.

114 In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT HAERING.

Witnesses,
SAM. JOHN STORRS.
JOHN A. FOSTER.

STATE OF NEW YORK,
City and County of New York, ss:

On this 16th day of October, 1868, before me, the subscriber, a notary public in and for the city and county of New York aforesaid, personally appeared the within-named R. Haering, and made solemn oath that he verily believes himself to be the original and first inventor of the mode of mounting artificial teeth herein described, and that he does not know or believe that the same was ever before known or used, and that he is a citizen of the United States.

SAM. JOHN STORRS,
Notary Public, City and County of New York.

Received, filed Oct. 29th, '68.

STATE OF NEW YORK,
City and County of New York, ss:

On this 9th day of December, A. D. 1868, before me, the subscriber, a notary public in and for the city, county, and State aforesaid, personally appeared Robert Haering, who, being duly sworn according to law, says: I am the inventor of a mode of mounting artificial teeth, for which I filed an application for letters-patent of the United States, on the 25th March, 1856. The application was rejected and several
115 times amended. I used my best endeavors to obtain a patent through my attorney, Jerome B. Wheat; the application was finally withdrawn, and the fee of $20 returned, as I have learned. I was unacquainted with the practice of the office and depended upon the advice of my attorney. Had I known that I might have obtained a patent by proceeding further in the case, I should have done so.

It was never my intention to abandon the invention. I have always believed, and frequently asserted, that my invention should have been patented, and had I been aware at an earlier day that the office would reconsider the case, I would have taken such steps as my means permitted to have obtained an immediate reconsideration of the application.

I believe that through my ignorance of the practice of the office, and from being ill advised, and I know that from no lack of appreciation of the invention or want of interest in it on my part, I have been deprived for years of the protection to which I was justly entitled, and have been helpless to prevent the public use of my invention.

ROBERT HAERING.

Subscribed and sworn to before me this 9th day of December, A. D. 1868.

[L. S.] M. M. LIVINGSTON,
Notary Public, New York City.

(Endorsed:) U. S. Patent Offices. Haering to office. Filed Dec'r 10th, '68. Affidavit of Robert Haering.

HOWSON'S PATENT OFFICES,
Washington, D. C., Jan'y 5, 1869.

To the Hon. COMMISSIONER OF PATENTS.

SIR: Above is my check for twenty dollars, to be used as follows:

	Drs. cts.
2 Government fee.	
116 J. B. Newbrough, ass'ee of Haering, mounting artificial teeth	$20 00

Very respectfully, yours,

H. HOWSON.

The model, drawing, and specification relating to the new cases forwarded by express.

(Endorsed:) Patent January 5, 1869. Office No. 85937. Robert Haering, (ass'r to John B. Newbrough, of New York, N. Y.,) of Melrose, Westchester County, State of New York, (now residing in Montreal, Canada.) Mode of mounting artificial teeth. Rec'd Oct. 29, 1868.

Petition—	Oct. 29, 1868.
Affidavit—	" " "
Specification—	" " "

Drawings.
Model—old specimens.
Cert. dep.
1 cash, $15 Oct., 29, 1868.
Add'l fee—cert.
1 " cash, $20—Jan. 5, 1869.
Examined " " " T. J. Barnett.
2 issue—Grinnell " " "
3 patented January 19th, 1869. V.
Recorded vol. , page , circular January 5, 1869.

H. HOWSON, *present.*
1868.

(Endorsed:) January 5, 1869—issue. Steuber. Improved mode of mounting artificial teeth. 1868.

117 United States of America to all to whom these letters-patent shall come:

Whereas Robert Haering, of Melrose, New York, has alleged that he has invented a new and useful improved mode of mounting artificial teeth, (he having assigned his right, title, and interest in said invention to John B. Newbrough, of New York, N. Y.,) and has made oath that he is a citizen of the United States; that he verily believes he is the original and first inventor or discoverer of the said invention, and that the same hath not, to his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents, praying that a patent may be issued therefor.

These are, therefore, to grant to the said John B. Newbrough, his executors, administrators, or assigns, for the term of seventeen years from the 19th day of January, one thousand eight hundred and sixty-nine, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention, a description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office to be hereunto affixed.

Given under my hand at the city of Washington, this nineteenth day of January, in the year of our Lord one thousand eight hundred and sixty-nine, and of the independence of the United States of America the ninety-third.

{ SEAL OF THE PATENT OFFICE. }

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

ELISHA FOOTE,
Commissioner of Patents.

118 UNITED STATES PATENT OFFICE.

Robert Haering, of Melrose, New York, now residing in Montreal, Canada, assignor to John B. Newbrough, of New York, (N. Y.) Letters-patent No. 85927, dated January 19, 1869. Improved mode of mounting artificial teeth.

The schedule referred to in these letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, Robert Haering, of Melrose, Westchester County,

New York, now residing in Montreal, Canada, have invented an improvement in mounting artificial teeth, and I do hereby declare the following to be a full, clear, and exact description of the same:

My invention relates to an improvement in securing artificial teeth upon bases or plates of hard or vulcanized rubber or other gum.

In order to enable others skilled in the art to practice my invention, I will now proceed to describe the manner of carrying it into effect.

A plaster cast of the mouth, to which the teeth are to be fitted, is first made. A coating of wax corresponding in shape and thickness to the "base" required is then applied to the cast and around the bases of the teeth, which are thus holding their proper position.

The teeth and base are now covered with plaster, which is applied in a soft state, but soon hardens, forming the second division of a mould, the other part of which is the cast first made.

After the portion of the mould last made has hardened, the two first divisions are separated, the wax is removed, and prepared rubber is substituted for the same, the sections of the mould being brought together so as to force the gum into all the interstices formerly occupied by the wax.

The mould is then placed in an oven and subjected to heat for such a length of time as may be necessary to harden the gum.

119 When the operation is complete the plaster is broken away and the teeth will be found securely set or mounted on a base of gum which is hard, tough, corresponds in shape to the wax base first made, and possesses many advantages over bases made of ordinary materials.

Without here claiming broadly the application of hard rubber or gum as a base for artificial teeth, I claim as my invention, and desire to secure by letters-patent, artificial teeth having gum bases, to which the teeth are secured as described, that is, by setting the teeth in prepared gum on a mould, embedding the whole in plaster, and hardening the gum by the application of heat.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

R. HAERING.

Witnesses,
SAM. JOHN STORRS,
JOHN A. FOSTER.

120 *Stipulation No. 3 & argument annexed.*

It is hereby stipulated & agreed that the annexed copy articles of association and certificate of the Dental Vulcanite Company, of Massachusetts, are true copies, and that the same may be offered as evidence on the hearing of this cause.

Dated Oct., 1869.

JOHN A. FOSTER,
Sol'r for Def't.

Whereas the undersigned are agreed & do hereby agree to associate themselves together for the purpose of manufacturing artificial gums & palates of vulcanite or hard rubber, under letters-patent of the United States granted to John A. Cummings, dated June 7th, 1864, and for the purchase of all rights under said letters-patent, to practice & use said invention secured thereby; and—

121 Whereas the undersigned are desirous to incorporate themselves

into a manufacturing company for said purposes, under the general statutes of Massachusetts:

Now, therefore, we, the undersigned, hereby agree to form a corporate company, under the name & style of "Dental Vulcanite Company," with a capital of five hundred thousand dollars, ($500,000,) for the purpose of manufacturing the said gums & palates in Boston, State of Massachusetts, the capital stock to be divided into five thousand shares of one hundred dollars each, and we mutually agree to take the number of shares set opposite to our respective names, and to pay therefor the sum of one hundred dollars for each share.

The undersigned hereby certify that a corporation has been formed, under the laws of the Commonwealth of Massachusetts; that its corporate name is Dental Vulcanite Company; that its purpose is
122 the manufacture & sale of artificial gums & palates of vulcanite or hard rubber, under letters-patent granted John A. Cummings, dated June 7th, 1864, & assigned to said corporation; that the amount of capital stock of said corporation is $500,000; that the whole am't thereof has been paid in, in patent rights & cash, & that the par value of the shares is $100 each.

(Signed) GEO. P. SANGER, *Pres't*,
JOSIAH BACON, *Treas.*,
JOHN A. CUMMIMGS,
G. H. P. FLAGG,
DAVID THAYER,
JOSEPH GAVETT,
Majority of Directors.

SUFFOLK, *ss:*

BOSTON, *Aug't 1st*, 1864.

Then personally appeared before me the above-named G. P. Sanger, J. Bacon, John A. Cummings, G. H. P. Flagg, Jos. Gavett, & David Thayer, & made oath that the foregoing certificate by them subscribed is true.

Before me. EDWIN K. ABBOTT, *J. P.*
Filed Aug. 6, 1864.

123

124 TESTIMONY FOR DEFENDANTS.

Circuit court of the United States.

Examination of witnesses for the defense, taken pursuant to stipulation before John A. Shields, examiner, &c., August 7th, 1869. Present, counsel for the respective parties.

Examination of Jehial Parmly, taken August 7th, 1869.

JEHIAL PARMLY, being duly sworn, testifies as follows:

Q. 1. What is your name, age, and profession, and where do you reside?

A. Jehial Parmly; aged 62 years; am a dentist; and reside at No. 19 West Ninth street.

Q. 2. How long have you been engaged in the profession of dentistry?

A. Thirty-six years.

Q. 3. Have you ever employed hard rubber as a base for making dental plates, and when first?

A. I think as early as 1858 or 1859, and may be a little earlier; cannot be positive without referring to my books.

Q. 4. Will you please state the process you employed when making a plate of hard rubber?

125 A. The process was to first take the cast of the mouth in wax or plaster, and turn into that plaster, which gave the form of the gum; then put gutta-percha or rubber to make a temporary plate of this form; then put on wax for the alviola ridge, and put into that blocks or single teeth of that if mineral teeth. I get the proper form of the mouth as you wish it to appear when finished; that is put into plaster; then this is drawn off, leaving a vacant space, which is then filled in either by pressing it in or pumping it in rubber; this is then vulcanized in the usual way.

Q. 5. When did you first witness such process as above described?

A. Not until I got a machine of Mr. Franklin. That was about ten years ago.

JEHIAL PARMLY.

Subscribed and sworn to before me, this 7th day of August, 1869.

JOHN A. SHIELDS,
U. S. Commissioner.

Examination of Henry A. Luther, taken August 7th, 1869.

HENRY A. LUTHER, being duly sworn, testifies as follows:

Q. 1. What is your name, age, and profession, and where do you reside?

A. Henry A. Luther is my name; I am a dentist, and reside at 50 West 18th street, New York City; my age is thirty-six years.

Q. 2. How long have you been engaged in the profession of dentistry?

A. Twenty years.

Q. Have you ever employed hard rubber as a base for making dental plates, and when first?

A. I have; first in the summer of 1856.

126 Q. 4. Will you please state the process you employed when making a plate of hard rubber?

A. The rubber is packed in the mould, and then vulcanized until hard.

Q. 5. When did you first witness such process as above described?

A. In the summer of 1856, as above stated. That was the first time rubber was employed in dentistry in New York.

Q. 6. Please state in detail the process employed by you in making hard-rubber plates.

A. I first procure a model of the mouth in plaster Paris; then make a temporary plate of gutta-percha, on which I arrange the teeth according to the articulation; I then insert the whole in plaster, which forms a mould; I then open and remove the wax and the gutta-percha plate, and pack rubber in its place, screw it together, and vulcanize it.

Q. 7. Are you a licensee of the Goodyear Dental Vulcanite Company?

A. No.

Q. 8. Are you a licensee of John B. Newbrough?

A. I am.

Q. 9. You have infringed the hard-rubber patents, have you not?

A. Not that I know of.

Q. 10. You have been enjoined from using the Nelson Goodyear rubber, have you not?

A. I have.

Q. 11. You used Simpson rubber without a license from the Goodyear Dental Vulcanite Company, did you not?

A. I did not.

Q. 12. Did you ever hold a license from the Goodyear Dental Vulcanite Company?

A. I did.

Q. 13. Is there a combination among the dentists to oppose the patents of the Goodyear Dental Vulcanite Company?

(Objected to as incompetent.)

127 A. Not that I am aware of.

Q. 14. Were you a member of the combination which defended the Wait case?

A. No.

Q. 15. Did you pay anything to assist in defending the Wait case?

A. I gave them ten dollars.

Q. 16. Do you know what is the composition of the iodized rubber, so called?

A. I don't know anything about it.

Q. 17. Has Dr. Newbrough promised to defend you against the Goodyear Dental Vulcanite Company?

(Objected to as irrelevant.)

A. No.

Q. 18. How long have you been using rubber in your practice?

A. Off and on since 1856.

Q. 19. Did you experience any difficulties in its use in 1856?

A. At first I thought that it did not look fit to put into a lady's mouth. I did not like the appearance of it.

Q. 20. What was there in its appearance worse than in its present appearance?

A. It was not as nice as gold or platina at that time, and is not now, I think.

Q. 21. Is that the only objection?

A. That was the only objection I had to it at that time.

Q. 22. Did you at that time use the American Hard Rubber Company's gum?

A. I did not.

Q. 23. How many rubber plates did you make in 1856?

A. I don't know.

H. A. LUTHER.

Subscribed and sworn to before me, this 7th day of August, 1869.

JOHN A. SHIELDS,
U. S. Commissioner.

128 *Examination of Jerome B. Wheat, taken August 7th, 1869.*

JEROME B. WHEAT, being duly sworn, testifies as follows:

Q. 1. What is your name, age, profession, and where do you now reside?

A. Jerome B. Wheat; I reside in the city of New York; and am by profession a dentist.

Q. 2. How long have you been engaged in the profession of dentistry?

A. More than thirty years.

Q. 3. From 1850 to 1856 where was your place of business?

A. In New Haven; I also did business in Philadelphia at the same time.

Q. 4. Are you acquainted with Robert Haering, and when did you make his acquaintance?

A. I am; I made his acquaintance in October, 1855.

Q. 5. State the circumstances relating to your making his acquaintance.

A. He called on me to say that he had made the discovery of inserting teeth in this vulcanized rubber, saying that Mr. Goodyear before he left for Europe stated that if he wanted any assistance or information from any dentist to call on me; that he wanted me to assist him in introducing this method of inserting teeth if I was willing to undertake it. I was satisfied from what I knew of hard rubber that teeth could be inserted in that manner from the statements he made and the specimens shown to me. He told me that he wanted to get out a patent for it, and that if I would assist him in introducing it he would assign to me one-half of the patent. I proceeded under that and made the application in March, 1856; the application was rejected the same year. I made a new application to have the case reviewed which was rejected the same year.

Q. 6. At that time was you informed that there had been another application made for the same or a similar invention by one John A. Cummings, of Boston, and if so through whom did you hear it?

129 A. I heard of it through the Patent Office, and that was given as one of the reasons for its rejection, that having been rejected. Haering stated to me that Mr. Bevans had procured from him a set of teeth which he wore together with other sets which he said Bevans had procured of him for the purpose of showing to his friends what could be done with them, but which he was since informed he had placed in the hands of John A. Cummings, and that he was apprehensive that Cummings was taking some advantage.

(Objected to as hearsay.)

Q. 7. When did you first hear from anybody that dental plates could be made of vulcanized or hard-rubber or the kindred gums?

A. Mr. Charles Goodyear, before he went to Europe, when he was in my office, stated to me that teeth could be made set in hard rubber and he had no doubt that they would be. This was about a year previous to Haering calling on me.

Q. 8. Had you prior to that seen any account in any of the journals?

A. No.

Q. 9. State if you know any other matter respecting the priority of the Haering invention over that of the Cummings?

A. Mr Bevans called in the early part of the summer of 1855 and showed me a set that he was wearing made by Robert Haering. Mr. Haering stated to me that he had been experimenting in teeth for a long time, and that some years previous he had inserted a set for his sister; Haering stated as a reason why he had not got out a patent before was that he had been improving the rubber; that which Goodyear used he did not consider fit to put into the mouth. He had not yet perfected the rubber.

(Objected to.)

Cross-examined by Mr. Blake:

130 Q. 10. Before Mr. Charles Goodyear went abroad did he say anything to you in regard to the setting of teeth in hard rubber?

A. He told me that he thought teeth could and would be set in hard rubber.

Q. 11. You withdrew the Haering application, did you not?

(Objected to as not the best evidence of what proceedings were taken in the Patent Office.)

A. Yes.

Q. 12. How often did you see Haering between October, 1855, and your application for his patent?

A. I saw him every time I passed through New York from Philadelphia to New Haven; I might have seen him half a dozen in the course of the winter. In October I resided in New Haven and he was in my office every day almost.

Q. 13. Was the description in the first application yours or his?

A. His.

Q. 14. Did he give it to you in writing?

A. No; we drew it up together; the drawings were his altogether; I made some suggestions.

Q. 15. Then the description of the process was the joint production of yourself and Haering, was it not?

A. I being a dentist may have made some suggestions, but I consider it as Haering's.

Q. 16. Had Haering at that time a knowledge of dentistry?

A. No, nothing more than he had acquired from setting teeth. He knew nothing more than how to set the teeth in such a manner that they could be worn. He did tell me that he had set a set of teeth for his sister some years previous; whether he had a dentist's assistance or not I don't know.

(The latter part of this answer objected to as hearsay.)

Q. 17. And you supplied the rest of the knowledge which was peculiar to dentists, did you?

131 A. I claim to have introduced this method of setting teeth on hard rubber.

Redirect:

Q. 18. Did Haering detail to you the process at the time of his first interview?

A. He did; for that I depended upon him entirely.

Re-cross:

Q. 19. You have said that you claim to have introduced the method of setting teeth upon hard rubber; state when, where, and to what extent; also name the persons to whom you have first fitted the plate made of dental vulcanite.

A. I think the first set I made was for Mr. Haering's daughter; the second for my sister, Mrs. Wrisley; the third for David Selden, of this city, now dead. This was in the autumn of 1855. In the autumn of 1855 I advertised in many of the Philadelphia papers and issued circulars Haering furnished the gum; I merely furnished the forms and sent them to Haering in New York. I used Oram & Armstrong's teeth, and perhaps some of White's, and Stockton manufactured some teeth for me. Oram & Armstrong manufactured some teeth expressly for this method.

J. B. WHEAT.

Subscribed and sworn to before me, this 7th day of August, 1869.

JOHN A. SHIELDS,
U. S. Commissioner.

Examination of Archibald McIlroy, taken August 7th, 1869.

ARCHIBALD MCILROY, being duly sworn, testifies as follows:

Q. 1. What is your name, age, residence, and profession?

A. Archibald McIlroy; aged fifty-four years; do*es* business in New York City, but reside in Greenwich, Connecticut; am dentist.

132 Q. 2. How long have you been engaged in that profession?

A. About thirty years.

Q. 3. When did you first learn of the application of hard rubber to dentistry, and from whom?

A. I can hardly separate the idea of the application of gutta-percha to dentistry and the application of hard rubber to it. In 1845 I saw Dr. Berend, of Gold street, Liverpool, one of the oldest dentists in England. He exhibited to me his mode of setting teeth in gutta-percha; it was by getting the teeth into position and applying gutta-percha in pieces in a heated and softened condition with the point of a specillum or some other instrument to the teeth and plaster model. I have also seen Dr. John Lovejoy, of this city, do substantially the same thing a short time before or after this date. I had read and heard of this thing before seeing either of these gentlemen; first in an English newspaper. I cannot state the precise time when the idea of vulcanite was brought to my attention, but remember distinctly that it was urged upon the attention of the New York Dental Society, which held its meetings at at that time in the Homœopathic Society in Bond street, in 1855 or 1856. This idea was urged by Dr. Putnam, and we ridiculed him and the whole thing. Dr. Putnam had personally urged me to adopt this on more than one occasion and offered to give me a license. He claimed to be a partner under the Goodyears for dentistry in its connection with hard rubber. He proposed to do the vulcanizing for the whole profession if he could get them in it. I told him he could not do it.

Q. 4. State what his process was for forming dental plates of hard rubber at that time.

A. He took the impression of the gums, generally of gutta-percha; that was his favorite process, but also of wax and plaster. From that he obtained a model of the jaw by pouring liquid plaster in this impression thus obtained; he then arranged the teeth on this plaster model

133 or temporary or trial plate, and placed it in a flask after oiling or varnishing it, and poured plaster into the flask until it reached a certain position in the teeth, then placed the other portion of the flask in the top, and after varnishing filled the upper part of the flask with plaster, so that they could be taken apart and the wax and temporary plate peeled out, and rubber packed in, and steamed or vulcanized it. This is as I recollect it now.

Q. 5. What other process was there prior to the use of hard rubber which was substantially the same as this?

A. Somewhere between 1851 and 1855 a communication appeared in the New York Dental Review, from Dr. Royce of Poughkeepsie, New York, describing his method of setting teeth, especially for lower cases, where we wanted weight or could get no suction. After making the silver plate to fit the plaster model obtained in the usual way, teeth were arranged upon the plate with wax, a piece of quill or other tube stuck into the wax in either end of the set, a mixture of sand and plaster poured over all except the tops of the quills. When hard the quills were withdrawn, leaving an aperture extending into the wax; teeth and plaster placed in an oven on the fire, thus absorbing the wax in the plaster and leaving a vacuum; melted block tin was poured into one of

the holes left by the quills until the metal run out of the hole in the other end. When cold the plaster was broken off and a set finished, filed, stoned, and sand-papered, &c., as they now finish off rubber. I have made teeth that way previous to my having heard of hard rubber. I think that the cheoplastic process is somewhat similar. I never saw a set made that way.

ARCHIBALD McILROY.

Subscribed and sworn to before me, this 7th day of August, 1869.

JOHN A. SHIELDS,
U. S. Commissioner.

134 *Examination of Maria Schweitzer, taken August 12th, 1869.*

MARIA SCHWEITZER, being duly sworn, testifies as follows:

Q. 1. What is your name, age, and residence?

A. Maria Schweitzer; aged sixty-nine years; I live in Fairmount, Westchester County, New York.

Q. 2. Do you know Robert Haering?

A. Yes, sir; he is my brother.

Q. 3. Where did you live in 1851?

A. In Eighteenth street, New York.

Q. 4. Where did your brother, Robert Haering, then live?

A. New Haven, Connecticut.

Q. 5. When did you first have a set of teeth made of hard rubber?

(Objected to, as assuming facts not testified to.)

A. I had none but those my brother made for me. That was eighteen or nineteen years ago; I cannot recollect now when.

Q. 6. Where did you live when you had that set made?

A. In Eighteenth street.

Q. 7. How did he come to make them?

A. I had no teeth at all; he said he would make me some. He took wax and put it in my mouth and got the impression, and then made the teeth.

Q. 8. What kind of teeth were they?

A. White, with a reddish-brown gum.

Q. 9. Where did he then live?

A. I cannot recollect this place; it is too long ago.

Q. 10. How long did you wear them?

A. I had them a long time in my pocket; I did not wear them; they hurt me. I did not like them. I wore none at all.

Q. 11. Is that the only set you had made?

A. That is the only one I had.

Q. 12. Do you know of any other set he made?

135 A. He made them for my brother's wife. He made her two sets I believe. She told me so.

(Latter part of this answer objected to.)

Q. 13. Did you ever see them?

A. Yes, I saw them once.

Q. 14. What was their color?

A. I believe reddish-brown; I believe so.

Cross-examination:

Q. 15. When did you lose your teeth?

A. I lost them in my country; when I came to this country I had only four. I came to this country twenty-four or twenty-five years ago.

Q. 16. Did you arrive from the old country in this city?
A. Yes.
Q. 17. What did you do when you first came?
A. I went out washing and anything that I could do.
Q. 18. Where did you first live?
A. In Washington street.
Q. 19. How long did you live there?
A. Two years, I believe.
Q. 20. Where did you move from Washington street?
A. To Frankfort street.
Q. 21. How long did you live in Frankfort street?
A. I had lived there only one year, when I moved to Eighteenth street, and lived there until my daughter moved to Fairmount; and then I went to live for half a year with my other daughter, Josephine Martin; and then I went to live with my daughter in Fairmount. My daughter moved to Fairmount twelve or thirteen years ago.
Q. 22. Have your daughters any children?
A. Both of them have children.
Q. 23. With which of your daughters did you live when you lost the last of your four teeth?
A. I lost them before I came to this country.
Q. 24. How many teeth did you have in your mouth when your brother made the plate for me?
A. I had only two.
136 Q. 25. Did he take an impression of your mouth, and how?
A. He took wax and put it in my mouth; he made it soft and poured it in. I don't know what you mean.
Q. 26. Explain how the impression was taken?
A. I don't understand what you mean.
(Counsel for defendant suggests that the question be put in the following form, which is accepted:)
Q. 27. How was the mould of your mouth made by your brother?
A. I don't know. I was not there. He took the wax and pressed it in my mouth.
Q. 28. With whom did you live when your brother made the teeth?
A. With my younger daughter.
Q. 29. Where did your younger daughter then live?
A. In Fairmount.
Q. 30. Josephine Martin is the older daughter, is she not?
A. Yes, sir.

MARIA SCHWEITZER.

Subscribed and sworn to before me, this 12th day of August, 1869.
JOHN A. SHIELDS,
Examiner.

Examination of George P. Miles, taken August 12th, 1869.

GEORGE P. MILES, being duly sworn, testified as follows:

Q. 1. What is your name, age, residence, and profession?
A. George P. Miles; aged thirty-two years; reside at 48 West Fourteenth street, and am a dentist by profession.
Q. 2. When did you first become aware of any mode of mounting teeth upon hard rubber? State in particular.
A. In the winter of 1855 and 1856. I was first shown a piece
137 by Mr. Putnam, who stated that it was made by Mr. Bevans, of Boston.

(The latter part of the statement objected to as hearsay.)

Q. 3. Did he request you to take a license?

A. No; I was not practicing, but was desirious of learning the mode of making rubber work, I went in the spring of 1856 to Mr. Putnam, in Bond street, New York.

Q. 4. State in detail the process employed in mounting teeth in hard rubber as then practised.

A. We made a model of the mouth with plaster, and the plaster was run on this model to make a male model; then we took the gutta-percha plate, warmed it and placed it on the male model, and then put wax on to take the articulation thereon. We then ground our teeth on and then arranged the wax around in the form that we wished it, and then put it in an iron frame with plaster and soap-stone mixed half and half, left it until dry enough to take apart, then took the moulds apart and took the gutta-percha out and dried the moulds until the moisture was dried out. We then packed the rubber in its vacant spaces in the mould and then vulcanized. At that time about two-thirds came out porous or bad.

Q. 5. Are you familiar with the process employed under the Cummings patent in making artificial teeth with hard rubber as a basis? If so, state whether there was any difference between that and the process used when you first saw hard-rubber plates in the winter of 1855–'6.

A. There was a slight difference in mixing the plaster, that was all. At that time they used soap-stone; it was mixed in the plaster and in drying the moulds. There were no other differences. This mixing of soap-stone was discontinued about two years after.

Q. 6. Do you know of a process for mounting artificial teeth by the use of a substance known as cheoplastic; if so, when did you first become aware of its use, and state the mode of using it in making dental plates?

A. I do. I became acquainted in the winter of 1854–'5. The
138 process was the same as in rubber work, the moulds were made the same as in rubber work; the only difference was, the metal was poured in, and we used spar instead of soap-stone, in mixing the plaster, although we could have used soap-stone. We used spar because it was named in the patent. Soap-stone was used in rubber because cheaper.

Q. 7. With that exception the process was exactly the same?

A. Yes, excepting the vulcanizing, there was no need of that.

Q. 8. Did they use any other metals, similarly?

A. Block-tin had also been used for a number of years before that in rude moulds. I never saw any of these made, but have seen the sets in mouths, that had been made.

Cross examination:

Q. 9. Was the cheoplastic process referred to in your 6th answer a patented invention? If so, state to whom and when was it patented.

A. It was patented to Dr. Blandy, of Baltimore. I could not give the date.

Q. 10. Did you ever practice the cheoplastic process?

A. Yes.

Q. 11. Did you, in your practice, follow the description given by Blandy in the specification amended to his patent?

A. That I cannot tell you, for I never saw the patent.

Q. 12. Describe in detail and minutely the cheoplastic process, as practiced or as understood and referred by you in your 6th answer.

A. I first took the impression of the mouth in plaster; then poured my plaster into my impression to get my plaster model. I then placed a thin wax plate into the model; then placed wax into that to take the articulation of the mouth; then made my articulation and ground my teeth on to the cast to suit me. I then placed my wax around
139 the teeth. Then it is all complete ready to place the set in an iron mould. Then pour a mixture of ⅔ plaster and ⅓ spar, and then left it until it became set and hard. I then opened my moulds and took the wax entirely out or as nearly as I can; then heat them up hot until the moisture was entirely evaporated. I then poured the metal in. I always left an aperture through the center of the mould to pour my metal in, and two air-holes on each side of it. After it is through, I cut off the teats and file and trim up the same as I would in rubber cases.

Q. 13. Are you positive that you used the process described in your last answer as early as 1854–'5?

A. I am rather inclined to think that I am mistaken. It must have been the spring of 1857.

GEO. P. MILES.

Subscribed and sworn to before me this 12th day of August, 1869.

JOHN A. SHIELDS,
Examiner.

Examination of Robert Haering, taken August 12th, 1869.

ROBERT HAERING, being duly sworn, testifies as follows:

Q. 1. What is your name, age, residence, and business?

A. Robert Haering; aged sixty years; reside at Mott Haven; am at present out of business.

Q. 2. Where did you reside in 1847?

A. New Haven, Connecticut.

Q. 3. In what business, and with whom?

A. In the employ of Charles Goodyear, as engraver.

Q. 4. How long did you remain in his employ?

A. About seven years, from about 1847 to 1854 or 1855.

Q. 5. Did you ever make dental plates of hard rubber; if so, when?

A. Yes, sir; the first teeth I ever made were teeth of hard
140 rubber; that is, a complete set, was in the latter part of 1850 or in 1851.

Q. 6. Where did you then live?

A. In New Haven.

Q. 7. State how you came to make this first set of teeth.

A. I made all sorts of articles, and I saw some teeth in New York—that is, in gold—and I thought I would try that; that brought the idea to me, and so I made a set.

Q. 8. Was this set for use?

A. No, sir; that set was not for use.

Q. 9. What was it for?

A. Only to show; it was not for use. I did not take the impression from anybody.

Q. 10. How many sets did you make at this time?

A. Right after this I made a set for my sister-in-law, Mrs. Caroline Haering.

Q. 11. Did you make any more?

A. I made her three sets; the first one did not fit her; the second did

not fit her very well. These two sets I made in the latter part of 1851, and these two sets were made of common porcelain teeth. Some time afterwards—a year and a half or two years after—I made another set for her of gum-colored rubber. This did not suit her very well. I think this was the last set I made for her.

Q. 12. Did you make any other sets for anybody during this time?

A. I made a set for my sister, Maria Schweitzer; it was a partial set.

Q. 13. Did you make any others?

A. Yes; some others for Bevins.

Q. 14. Who is Bevins?

A. We always called him Mr. Bevins. This was some time afterwards.

Q. 15. What was Bevins' business?

A. He was engaged in making cotton-batting by Charles Goodyear in the same building I was.

Q. 16. How many did you make for Bevins?

141 A. I cannot tell how many; five or six at different times; some partial sets, some whole sets.

Q. 17. How did you come to make any for him?

A. He asked me whether I thought I could make a set of teeth; I laughed, and told him "I guessed so." He wanted me to make him a set. I made him a set entirely of rubber—teeth and all. I did not want to buy porcelain teeth and then give them away.

Q. 18. How many more did you make for him?

A. A few weeks after he came and said it was a good thing; that he wanted me to make a set with porcelain teeth. I said I would not; that he must give me the porcelain teeth. I bought the teeth myself and made him a set. I made next two partial sets with porcelain teeth; then I stopped and did not want to make him any more, for he told me he sent them down to Boston, and would make a good thing of it. I did not like that, and told him I would not make him any more. I made him no more.

Q. 19. When you first made sets, did you let anybody know of it?

A. No, I kept it secret, as I wanted to keep it for myself. Goodyear made every use of my inventions, and I thought I would try and keep that for myself.

Q. 20. How long did you keep it secret?

A. About two or three years.

Q. 21. When did you first apply for a patent?

A. Dr. Wheat applied for a patent about March, 1856.

Q. 22. When did you hear of John A. Cummings?

A. I did not hear of him as a dentist when I made teeth for Bevins, but I never heard that he was to apply for a patent.

Q. 23. Did you hear anything in respect to his applica' for a patent prior to yours being rejected when Wheat applied for it?

A. No, sir, I never had heard of the application being made by him.

Cross-examined:

Q. 24. What is your business?

142 A. I have no business now.

Q. 25. What was your last business, and when did you do it?

A. My last business was experimenting and manufacturing articles of Goodyear rubber.

Q. 26. When did you cease doing that business?

A. I stopped the manufacturing when I was enjoined; I did not stop experimenting—continued on.

Q. 27. About how many years ago were you enjoined?

A. I cannot tell; the injunction was served on me; then I made an arrangement with Poppenheusen and stopped.

Q. 28. After you were enjoined did you continue to manufacture?

A. No, sir.

Q. 29. Were you not imprisoned thirty days for violating the injunction of the hard-rubber patent?

A. I was sued for that, and they found me guilty, but I never admitted that I did it.

Q. 30. Were you imprisoned thirty days for doing it?

A. I was imprisoned twenty days for doing it.

Q. 31. When were you imprisoned twenty days for doing it?

A. I do not know the year any more—it was not four years ago.

Q. 32. Had you ever been in jail before?

A. No, sir, I never was.

Q. 33. Since you were in jail what have you done to earn your living?

A. Different work.

Q. 34. State each kind of work.

A. Partly I was in Canada, working in rubber.

Q. 35. (Question repeated.)

A. Partly laying out plans for distilleries for the Government; partly teaching ignorant dentists how to make India-rubber teeth; partly experimenting; I experimented a whole year for Dr. Flagg, of Boston.

Q. 36. What do you mean by "laying out plans for the Government for distilleries?"

143 A. It is to take the drawing for the whole building to show how the building, stills, &c., are situated throughout the entire building, so as to put in the hands of the officials, that they may know how it is situated.

Q. 37. Who employed you to do this?

A. John Coffin, the assistant assessor, gave me a sketch, and my oldest son also requested me to do it.

Q. 38. Of what district is John Coffin the assistant assessor?

A. I do not know what district; he has an office in Fifty-eighth street and Third avenue. I do not know what district that is.

Q. 39. How many such plans did you make, and how long did this employment last?

A. I did not make many myself; I took about two or three months that I worked at it, but I did not work steadily at it. I took them as they were ready.

Q. 40. When did you begin making such plans, and how long did you continue?

A. It was last year, about September, until after new year.

Q. 41. What else have you done to make a living since you were enjoined?

A. I was working in Canada, in India-rubber.

Q. 42. When were you working in Canada, and how long did you work there?

A. I commenced a year and a half ago and came back, and then went again, and came back again. I cannot remember the exact times.

Q. 43. When you came here, as you say, was it on the rubber business?

A. I was experimenting in different compounds which did not come under the Goodyear patents, and had parties who assisted me in money.

Q. 44. Before you went to Canada what did you do to get a living?

A. Working in horn combs.

144 Q. 45. Where did you work in horn combs, and how long?
A. In Broadway, between Thirty-sixth and Thirty-seventh streets.
Q. 46. When you lived at Belleville, what did you do?
A. There was where I experimented and made different compounds for dentists.
Q. 47. Have you recently been arrested for counterfeiting?
A. Yes; I was.
Q. 48. Did you plead guilty?
A. I plead guilty until my trial would come on, when I would explain the whole matter as it was.
Q. 49. Who was with you when you *was* arrested?
A. There was no one with me when I was arrested.

Adjourned to Saturday, 10 a. m.

Q. 50. When you were making plans for distilleries, you were acting as a Government detective, were you not?
A. No, sir.
Q. 51. What were the plans for?
A. Assistant assessor got the contract to make the plans, and he could not do it alone, and got me to assist him?
Q. 52. With whom was this contract made?
A. I don't know.
Q. 53. Were you ever in Mr. Poppenheusen's employ at College Point, Long Island, and when?
A. Yes, about two or three weeks, some years ago; I can't recollect the time.
Q. 54. Did you leave of your own accord, or were you discharged by Mr. Poppenheusen?
A. I left of my own accord.
Q. 55. Did you leave for the purpose of going into the business of infringing the patents?
A. No, sir.
Q. 56. What did you do immediately afterwards?
A. I manufactured billiard balls—rubber or gutta-percha balls.
145 Q. 57. What did you make them of?
A. Principally of gutta-percha and of a compound of my own invention.
Q. 58. How much sulphur to a pound of gum was in them?
A. I used from four to twenty-two ounces of sulphur to the pound of gum.
Q. 59. How long did you continue to manufacture billiard balls?
A. About four months.
Q. 60. State the year and months when you were manufacturing billiard balls.
A. I don't recollect.
Q. 61. What did you do next?
A. I worked for Horace H. Day. He bought the patent, and I went into his employ.
Q. 62. How long did you work for Horace H. Day?
A. About three months.
Q. 63. What year was that?
A. The year the banks stopped specie payments.
Q. 64. What did you do next?
A. I was next reëmployed by Charles Goodyear in New York City.

Q. 65. How long did you continue in Mr. Goodyear's employ?
A. About six months.
Q. 66. What did you do next?
A. I went into making a new composition for combs.
Q. 67. When was this?
A. I don't know the year.
Q. 68. What was the composition?
A. It was made out of India rubber, coal tar, and sulphur.
Q. 69 How much sulphur to the pound of rubber?
A. Say from twelve to eighteen ounces.
Q. 70. Did you manufacture combs of this composition?
A. I did.
Q. 71. When was this?
146 A. When I left Goodyear. I don't know the year.
Q. 72. How long did you manufacture combs with this composition?
A. About half a year.
Q. 73. What did you do next?
A. Manufactured dental gum.
Q. 74. When was that?
A. About 1861 or 1862.
Q. 75. How long did you manufacture dental gum?
A. A couple of years.
Q. 76. When did you go to New Haven?
A. About 1846 or 1847.
Q. 77. Who employed you to go there, and where did you go in New Haven?
A. Charles Goodyear; in Smith's building, which Mr. Goodyear hired.
Q. 78. How long did you remain in New Haven, in Mr. Goodyear's service?
A. About seven or eight years.
Q. 79. Did you remain in Smith's building all that time?
A. No, sir; we removed to Union Street about 1847 or 1848 or 1849; I am not sure as to year.
Q. 80. How long did you remain in that building?
A. While I was in New Haven.
Q. 81. In what capacity were you while in the employ of Mr. Goodyear?
A. Engraving and experimenting in making rubber goods.
Q. 82. When did you begin to make rubber goods?
A. In 1849, I think.
Q. 83. Did you make hard or soft rubber goods?
A. I made both hard and soft in 1849.
Q. 84. What hard-rubber goods did you first make?
A. Spoons and knife handles.
Q. 85. What did you make next?
A. I don't recollect, I made so many things.
147 Q. 86. When did you make your invention of plaster molds?
A. From 1849 up I have made plaster molds. I don't claim to have invented it.
Q. 87. Was there a heater in the building in which you made such rubber?
A. Yes.
Q. 88. Who had charge of the heater?
A. George W. Homan.

Q. 89. When you made hard-rubber goods, did Mr. Homan have charge of the heater, or yourself?

A. He had charge of the heater. When closed I sometimes put things in before the heat was applied.

Q. 90. Can you describe the heater?

A. It was closed up with wedges instead of screws.

Q. 91. How long after you began to make hard-rubber goods did you make your first dental plate?

A. I know I made dental plates first in 1851—July or August.

Q. 92. To whom did you show that plate?

A. The first plate I didn't show to anybody.

Q. 93. How could you make it without Mr. Homan seeing it?

A. The plate was enclosed in plaster Paris, and he could not see it, and he did not care to see what I made.

Q. 94. In your answer to the 9th question, you have stated that you made your first dental plate only to show. Is that true?

A. That is true, and my last answer is also true.

Q. 95. Why, then, did you not show it?

A. It was not perfect. It was only an experiment.

Q. 96. When did you make the next plate?

A. I don't know the day. It was in the summer of 1850 or 1851.

Q 97. Did you show that?

A. I showed it, I think, at home. Did not show it to Goodyear.

Q. 98. Did you show it to Homan?

148 A. I am not sure.

Q. 99. Was Mr. Homan your confidential friend?

A. He was.

Q. 100. Did you keep anything else secret from Mr. Goodyear?

A. No, sir, nothing else.

Q. 101. Why did you keep this secret from Mr. Goodyear?

A. Because for everything I invented he promised me money, but never kept his word. I thought I'd keep that to myself. My purpose was to get a patent for it.

Q. 102. How long did you work for Mr. Goodyear before you had anything to do with rubber?

A. About a year or two.

Q. 103. Were you examined as a witness in the United States circuit court, in this city, in a suit between Conrad Poppenhusen and the New York Gutta-Percha Comb Co., in May, 1858?

A. I was examined—but don't remember the year.

Q. 104. When so examined was not the following question put to you: "Have you had experience in the manufacture and working of India-rubber and gutta-percha gum," and did you not make the following answer: "Ans. Yes"?

A. I don't recollect.

Q. 105. Were you not then asked, "When did your experience commence," and did you not reply "in 1851 and up to the present time"?

A. Yes; I guess so.

Q. 106. Were you examined as a witness in a suit against John Dixon in the United States circuit court for the district of New Jersey?

A. I was.

Q. 107. Were you not asked in that suit "When did you first vulcanize hard rubber and how did you do that," and did you not reply, "I guess it was about 1849 when I commenced to vulcanize hard

149 rubber; that question has a great deal of meaning; it is different in making combs, powder-flasks, or images"?

A. I can't recollect any such question being asked me.

Q. 108. Did you not testify in both these suits for the purpose of defeating the hard-rubber patents by antedating the invention by showing that you had practised the invention of hard vulcanization before Nelson Goodyear's invention?

A. There seems to be two meanings in the question; one meaning is to defeat the company, and the other to defeat the invention.

Q. 109. (Question repeated.)

A. I did not.

Q. 110. What was your purpose?

A. My purpose was stating it as it was.

Q. 111. Were those suits not decided in favor of the validity of the Goodyear patents, notwithstanding your testimony?

A. I understand the one against the Gutta-Percha Comb Co. was not decided against them, but that they sold out to the Hard Rubber Co. I know very little about the Dixon suit.

Q. 112. Will you look at the paper now handed you and state whether that is your signature which is appended to it?

A. I don't think it is my signature. I don't recognize it as my signature.

Counsel now reads to the witness the following paper:

U. S. circuit court, district of Massachusetts, 1865.

DENTAL VULCANITE CO. vs. WETHERBEE. } In equity.

SAME vs CUTLER. }

Robert Haering, of lawful age, being duly sworn, says: I reside in the city of New York; I formerly resided in New Haven, and while
150 there was employed by Frederick A. Bevins to make some hard-rubber or vulcanite plates for artificial teeth. This was, I think, in 1853.

I made many such plates having teeth set in them, first and last, while employed by Bevins, and they answered very well, except so far as the color was an objection, that being rather dark and dingy. I never knew of any such invention, namely, the manufacture of plates of hard rubber or vulcanite having artificial teeth set therein until it was mentioned to me by Mr. Bevins, or my being applied to by him to be employed as above mentioned. At first I supposed Bevins to be, himself, the inventor, but afterwards ascertained from his own statements that the inventor was Dr. Cumming, of Boston, and that Bevins was working for him. When I discovered this fact I refused to go any further in the work, as I had been receiving from Bevins very insufficient pay for my services. We then separated, and about this time I learned that Dr. Cumming was applying for a patent for his said invention and had filed a caveat as early as 1852. I know also of Dr. Wheat applying for a patent for a similar thing in 1856, and myself told him that he could not get it; that Dr. Cumming was ahead of him.

ROBERT HAERING.

STATE OF NEW YORK,
County of Kings, ss:

I, Gordon L. Lord, a commissioner of the Commonwealth of Massa-

chusetts, residing in the county and State aforesaid, do certify that, on the twenty-ninth day of March, 1865, Robert Haering personally appeared before me in said county and State and subscribed the foregoing affidavit in my presence, and did depose and say that the matters therein contained were true.

In witness whereof I have hereunto set my hand and official seal.

GORDON L. FORD,
Commissioner of the Commonwealth of Massachusetts.

151 Q. 113. Did you on or about the twenty-ninth day of March, 1865, subscribe and swear to an affidavit in the words and figures just read to you?

A. No, sir.

Q. 114. Do you swear that you ever made rubber plate with teeth prior to 1853?

A. Yes, sir.

Q. 115. Do you swear positively that the signature just shown is not yours?

A. It is not my signature.

Q. 116. How do you fix the date of your making the first dental plate?

A. I can't exactly fix the date, but I know that it was just before some presidential election, but I don't know what President it was.

Q. 117. Wasn't it after the presidential election?

A. I am sure it was a long time before the election.

Q. 118. How do you know that it was before?

A. I can't explain it.

Q. 119. Do you know the date of President Lincoln's assassination?

A. I don't.

Q. 120. Do you know when Buchanan was elected President?

A. I don't know the year; I know he was elected.

Q. 121. Do you know Jerome B. Wheat, now of New York?

A. I know him.

Q. 122. When did you make his acquaintance, where, and how?

A. I made the acquaintance with him in New Haven, in his own house. I can't recollect the year; it was in the year 1854 or 1856.

Q. 123. How do you know it was 1854 or 1856?

A. I know it because I moved away from New Haven.

Q. 124. When did you move away from New Haven?

A. In 1857 or 1858.

Q. 125. How did you make his acquaintance?

152 A. I bought a couple of artificial teeth of him.

Q. 126. What did you say to him?

A. He asked me if I was a dentist. I said, no. Then he asked me what I wanted them for, and I told him and showed him.

Q. 127. Did not Mr. Goodyear send you to him?

A. No, sir.

Q. 128. Did you not say so to Mr. Wheat?

A. No, sir.

Q. 129. Did you not call on Dr. Wheat and tell him that you had made a certain discovery of inserting teeth in vulcanized rubber?

A. Not that I know of.

Q. 130. Did you not say to him that Mr. Goodyear, before he left for Europe, stated that if you wanted any assistance or information from any dentists to call on Dr. Wheat?

A. No, sir, I didn't say any such thing to Dr. Wheat.

Q. 131. Did you not ask Dr. Wheat to assist you in producing this method of inserting teeth, if he was willing to do it?

A. No, sir; I did not. I knew more about setting teeth than he did.

ROBERT HAERING.

Subscribed and sworn to before me this 14th day of August, 1869.

JOHN A. SHIELDS,
Examiner.

Examination of Adolphus G. Haering, taken August 12th, 1869.

ADOLPHUS G. HAERING, being duly sworn, testifies as follows:

Q. 1. What is your name, age, and residence?

A. Adolphus G. Haering; aged twenty-seven years, and I reside at Mott Haven, New York.

153 Q. 2. From 1850 to 1855 where did you reside, and with whom?

A. In New Haven, Connecticut, with my father, Robert Haering?

Q. 3. State whether during this time you saw any hard-rubber teeth made by your father, and if so, when and how many.

(Objected to as hearsay.)

A. I did in 1851; there were several.

Q. 4. State when you saw the first set, and under what circumstances.

A. I do not exactly recollect, but think it was for my aunt, Maria Schweitzer. I saw him make several in his shop.

Q. 5. What kind of a set was the first one?

A. It was a very dark brown, or pretty nearly black one.

Q. 6. What kind of teeth had it in?

A. White teeth; I think they call them porcelain.

Q. 7. Where was this first set made?

A. In the shop where my father was to work.

Q. 8. How did you come to see this set?

A. I was there every day after return from school; I was there continually, seeing him do almost everything.

Q. 9. For how long did he continue to make sets to your knowledge?

A. For several years during that time.

Q. 10. Did he make sets for any other member of your family?

A. One for another member of my family, named Caroline Haering.

Q. 11. How many sets did he make for her?

A. That I do not recollect.

Q. 12. Can you describe the process he used in making that set?

A. No, not very well; only that he made the mould of plaster of Paris, then he put the rubber into this, and then put the whole in the vulcanizer.

154 Q. 13. When did he make the second set for Mrs. Caroline Haering?

A. I think it must have been made in the same year, if I am not mistaken.

Q. 14. What kind of rubber was used in the second set?

A. That was very dark rubber, also.

Q. 15. Did you ever see a man by the name of Bevins; and if so, who was he?

A. I did; he was a man employed to make cotton-batting, at that time in the same factory that my father was.

Q. 16. *Was* you ever present at any conversation between your father and this Bevins?

A. Not that I can recollect.

Q. 17. Can you state about how many sets of teeth you saw your father make prior to 1865?

A. I cannot state.

Q. 18. About how many?

A. I cannot state that.

Cross-examination:

Q. 19. Give the day and month of your birth?

A. August the twenty-second, 1842.

Q. 20. Where did you go to school?

A. John E. Lovell was my school-teacher's name. It was called the Lancastrian school.

Q. 21. When did you enter and when did you leave that school?

A. I entered when I was about five or six years old, and left when I was about twelve.

Q. 22. What time in 1851 did you see your father make hard-rubber teeth?

A. I can't exactly state. It was in that year. I know that it was in that year, because at that time I put a flag upon the top of the house with the name of Pierce and King on it. I was bothering father about putting the letters on it. That was at the time of the nomination of Franklin Pierce for President, and King for Vice-President.

155 Q. 23. How do you couple these two facts—your putting up the flag and your father's making teeth?

A. At the time that I bothered him to put the letters on, he was then to work making a set of teeth, and became quite angry with me.

Q. 24. You have no other means of fixing the time?

A. No; I think that is the only way.

Q. 25. What is your business?

A. I am a manufacturer; my trade is engraving and lithographing, but I do not follow it.

Q. 26. What is your present business?

A. I am not doing anything.

Q. 27. How long have you been doing nothing?

A. About a year I guess.

Q. 28. What was your last business?

A. I was last in the comb business, or rather, I was last experimenting in India-rubber colors.

Q. 29. With whom and where were you in the comb business?

A. I was alone—no one with me.

Q. 30. Where did you carry on that business?

A. In Thirty-second street.

Q. 31. Manufacturing or selling?

A. Manufacturing.

Q. 32. What kind of combs did you manufacture?

A. India-rubber combs.

Q. 33. Did you manufacture them alone, or in company with any one?

A. Alone.

Q. 34. Did you have a license under the hard-rubber patents to manufacture?

A. No.

Q. 35. You were infringing these patents, *did* you not?

A. I did at the time.

Q. 36. Why did you stop manufacturing?

A. Because I got an injunction.

Q. 37. How long did you manufacture before you were enjoined?

156 A. I guess about six months.

Q. 38. How many times have you been enjoined under the hard-rubber patents?

A. Once before; that is, my father had a place on Broadway, and we were enjoined; I was with him under salary. This place on Thirty-second street was my own.

Q. 39. While you were with your father he was punished for violating an injunction, was he not?

A. He was punished once for violating an injunction.

Q. 40. How long was it after your father was punished that you began the comb business?

A. I think that it was about the same time; that I can't state exactly.

Q. 41. How old were you at that time?

A. I was about twenty-two.

Q. 42. You were six months in that business, were you?

A. About six months.

Q. 43. What have you done during the five years since you left the comb business?

A. I was in the wood business part of the time; I was getting up a machine to make ruffles—experimenting and trying different things.

Q. 44. What did you first do after you were enjoined?

A. I went into the wood business.

Q. 45. Did you carry on the wood business alone, and where did you carry it on?

A. No, sir; I carried it on with my brother in Thirty-fourth street, between the Ninth and Tenth avenues.

Q. 46. How long were you in the wood business?

A. I guess it was about six or seven months.

Q. 47. Why did you leave the business?

A. It did not pay, and I sold out.

Q. 48. How much did you sell out for?

A. I sold my share out for six hundred dollars.

Q. 49. Note or cash?

A. Cash.

Q. 50. What did you after that?

157 A. Moved over to Jersey; did not do anything much, except once in a while drive a man in a wagon.

Q. 51. Where did you live in Jersey City, and with whom?

A. In the outskirts of Belleville, with father.

Q. 52. What was your father doing at that time?

A. He was experimenting in rawhide, and was part of the time in Canada.

Q. 53. He was infringing in hard-rubber patents part of the time?

A. No, sir, not to my knowledge.

Q. 54. How long did you stay in Belleville, doing nothing?

A. About eighteen months.

Q. 55. What means of support had you during that time?

A. Through father; I had a little money of my own.

Q. 56. What did you do after you left Belleville?

A. I experimented in rawhide.

Q. 57. Where did you experiment in rawhides?

A. At home, on Third avenue, near Thirty-eighth street, and part of the time with my aunt, in Yorkville.

Q. 58. How long did you continue experimenting in rawhides?
A. On and off for over a year.
Q. 59. Did you do anything else at that time?
A. Nothing in particular.
Q. 60. Did you earn any money during that time, and how?
A. A little with cards.
Q. 61. Did you keep a gambling-house?
A. No, sir.
Q. 62. Did you earn any money any other way?
A. No, sir.
Q. 63. After you got through experimenting in hides, what did you do?
A. I went to experimenting in colors of India-rubber.
Q. 64. How long ago was that?
158 A. A year and a half ago, I guess it was.
Q. 65. How long did you keep at that?
A. I kept on with it, and do a little now.
Q. 66. What else have you done within the past two years?
A. Nothing more than a little work for Mr. Newbrough, running errands, &c.
Q. 67. Do you mean that you have been in Dr. Newbrough's employ; and if so, how long?
A. I was not permanently engaged by him; only on some days; that began last fall.
Q. 68. Have you earned any money during the last two years, except what you earned of Dr. Newbrough?
A. No, sir.
Q. 69. Have you received any money from any source during the last two years except what you received from Dr. Newbrough?
A. No, sir.
Q. 70. Have you done any work within the last two years excepting the experimenting in rubber?
A. No, sir.
Q. 71. Where did you carry on this experimenting?
A. At home.
Q. 72. Where did you live during the last two years?
A. At New Rochelle, Melrose, and now at Mott Haven.
Q. 73. What have been your means of support during the last two years?
A. Father.
Q. 74. What has been his business during the last two years?
A. I don't know all of his business; part of the time he was experimenting.
Q. 75. What has he been experimenting in during the last two years?
A. Colors of India-rubber, and rawhide, and different compositions.
Q. 76. What else has he been doing during the last two years?
159 A. I don't know; I can't swear to what he has been doing during the last two years.
Q. 77. Has he been doing any engraving within the last two years?
A. Not that I know of.
Q. 78. Have you been doing any engraving within the last two years?
A. No, sir.
Q. 79. During this period of two years, last past, have you been closely occupied with your experimenting?
A. Not very closely.
Q. 80. Have you passed the greater part of your time at it?

A. I have.
Q. 81. And these experiments have been made at home, have they?
A. Yes, sir.
Q. 82. When were you last engaged in the business of engraving?
A. I was about twenty years old.
Q. 83. How long were you engaged in that business, and where?
A. About five years, at 92 William street, this city.
Q. 84. When did you come to this city?
A. When I was about thirteen years old.
Q. 85. How long after you left school?
A. Very shortly; a few months after.
Q. 86. Who paid you for the experiments that you made?
A. Nobody.
Q. 87. Did your father pay for the experiments you made?
A. He gave the money with which to buy the materials.
Q. 88. Did you buy the materials yourself?
A. Sometimes; not always.
Q. 89. Where did you buy them?
160 A. At different places in New York; some places in New Jersey. I bought some colors of Lillienthal, some of Pratt, some of Schiefflin, and at several other places.
Q. 90. Do they know you at either of these places?
A. They know me at Lillienthal's.
Q. 91. Have you a bill there?
A. Not very often—sometimes.
Q. 92. In what colors did you experiment?
A. In red, white, green, blue, yellow, and variegated.
Q. 93. Did you use a vulcanizer?
A. I did; but not always. I baked sometimes in the stove. I used such a vulcanizer as dentists use.
Q. 94. What was the object of making those experiments?
A. Some of them for dental purposes, some for knife and tooth-brush handles.
Q. 95. At whose suggestion did you make experiments with colored rubber for dental purposes?
A. It was my own will.
Q. 96. What was your object in making those dental experiments?
A. I was trying to get the gum color, and also to vulcanize without sulphur.
Q. 97. And why did you try to vulcanize without sulphur?
A. To get a patent on it.
Q. 98. Where were you in the month of June, 1869?
A. In Mott Haven.
Q. 99. Who were living at home with you at that time?
A. My father, mother, brother, and one of my sisters.
Q. 100. Were you at home on the twenty-sixth of June, 1869?
A. I was in New York in the day-time. I am at home almost every evening; whether I was at home that evening, I don't know.
Q. 101. Were you at home the night your father was arrested?
A. I was; they took me with him.
Q. 102. Where did they take you?
161 A. Mulberry-street police headquarters.
Q. 103. At what time were you arrested?
A. The officers were there at three o'clock in the afternoon.
Q. 104. Who else was arrested at the same time?
A. My brother.

Q. 105. On what charge were you arrested?

A. For aiding in counterfeiting United States currency.

Q. 106. Was there there machinery and apparatus for counterfeiting? and describe it.

A. There was an old machine there, but whether it could be used for such purpose I don't know.

Q. 107. What else was there there?

A. They found a large plate—I mean stone; nothing on it.

Q. 108. What else?

A. That is all—well, a few engraving tools.

Q. 109. While you lived in Belleville, New Jersey, was there counterfeiting apparatus there?

A. No, sir.

Q. 110. Since you have lived at Mott Haven, how much work has been done in counterfeiting United States currency?

A. I don't know anything about it.

Q. 111. How long were you kept in jail?

A. Over Sunday. I was discharged on Monday.

Q. 112. What is your brother's business?

A. Lithographing. He never followed it.

Q. 113. What is your father's trade?

A. He is a lithographer, also.

Q. 114. At the time your father made the dental plates in 1851, how far did you live from the factory?

A. Three blocks.

Q. 115. What was your father's employment at that time?

A. He was employed by Charles Goodyear to take charge of the engraving department—to make maps and globes, engravings on stone.

162 Q. 116. Where did he make the dental plates you spoke of?

A. In Charles Goodyear's factory—sometimes at home.

Q. 117. Where did he make the one you fixed by the Pierce-and-King flagstaff?

A. At Goodyear's factory.

Q. 118. In what part of the building?

A. In the room used for experimenting.

Q. 119. Who were the persons experimenting in rubber at that time?

A. There was a number of persons there. There was a man named Bevins; one man of the name of Day. I saw Mr. Homan, Mr. Deforest, and others.

Q. 120. Did you see, then, your father fill the set?

A. Yes, sir.

Q. 121. What did he fill it with?

A. India-rubber.

Q. 122. Was it pure rubber, or was it mixed with some substance; and if so, what?

A. It was mixed with some reddish substance.

Q. 123. Was there sulphur in it?

A. I couldn't say.

Q. 124. How did you know it was rubber?

A. Father told me.

Q. 125. How long did you watch him doing it?

A. I guess I stood there ten or fifteen minutes.

Q. 126. Was the work then done?

A. No, sir.

Q. 127. When and where did you next see it?

A. Shortly after. I might have seen it a week or two weeks after in the same place—in the shop.

Q. 128. Who had it there?

A. Father.

Q. 129. What was he doing with it?

A. He was filing and scraping and cutting it.

Q. 130. Was it in the same room?

A. I believe it was.

163 Q. 131. Was there anything at that time to fix what you saw on your memory besides the Pierce flagstaff?

A. No; I can't bring anything to memory now.

Q. 132. Can you recall any circumstance which occurred at the time of your seeing any of the work with these plates to fix it in your memory?

A. The only thing is the breaking of my arm, which occurred when I was about 11 years old.

Q. 133. What did you see when you broke your arm?

A. Previous to that I know he made those rubber sets. That is all that I can fix the time by.

Q. 134. In what year did you break your arm—in 1857?

A. No; it was earlier than that. I know that I was about 11 years old.

Q. 135. What caused you to take a special notice of these rubber plates?

A. Because he made a set of teeth for my aunt.

Q. 136. Were you at school, and how many hours a day?

A. I was at school from 9 in the morning to 4 in the afternoon.

Q. 137. What other work do you recollect your father doing besides these India-rubber plates?

A. He made knife-handles, spoons, and card baskets.

Q. 138. Have you ever been arrested on any other charge than counterfeiting?

A. No.

Adjourned to Saturday morning, the fourteenth inst., at ten o'clock.

ADOLPHUS G. HAERING.

Subscribed and sworn to before me this 14th day of August, 1869.

JOHN A. SHIELDS,
Examiner.

164 *Examination of George W. Homan, taken August 14th, 1869.*

GEORGE W. HOMAN, being duly sworn, testifies as follows:

Q. 1. What is your name, age, residence, and present occupation?

A. George W. Homan; am fifty years old; reside in New Haven, Connecticut, and am at present a machinist by occupation.

Q. 2. What was your business in 1849; in whose employ were you, and where?

A. I think it was in the year 1849 I commenced to work for Mr. Goodyear, as an engineer, and in experimenting with rubber, in New Haven, Connecticut.

Q. 3. At that time did you know Mr. Robert Haering, the witness last on the stand?

A. Yes.

Q. 4. State what his business at that time was.

A. I think he was employed as a lithographer.

Q. 5. In 1850 do you know of Haering's having made dental plates of hard vulcanized rubber?

(Objected to as leading.)

A. Mr. Haering showed me dental plates made of rubber, and I think it was somewhere about the year 1850 or 1851.

Q. 6. How did he come to show you the first plate? State the circumstances in detail.

A. He *done* it voluntarily, stating he had got up something that he wanted to show me; he opened the mould, and asked me what I thought of it.

Q. 7. About when was this?

A. I think it must have been some time in 1850 or 1851.

Q. 8. How many sets of teeth did you see made by Mr. Haering at this time?

A. I should say three or more.

Q. 9. Can you state more accurately the time in reference to the death of Mr. Nelson Goodyear, the patentee?

A. I can't say; it seems to me not very long before. It might have been a year or more.

165 Q. 10. Do you know of his having made any sets of teeth for Mr. Bevins, one of the employees of Mr. Goodyear?

A. He told me that Mr. Bevins wanted him to make a set of teeth, and asked me if he had better make them. I told him I thought I would. He afterwards showed me a set which he said was for Mr. Bevins.

Q. 11. Were there more than one, or only one set that he made for Mr. Bevins that you know of?

A. I don't know of but one set that he told me positively was for Mr. Bevins.

Q. 12. How long after you saw the first set he ever made, was it that you saw this set made for Bevins?

A. I can't say positive'. It might have been six months, more or less.

Q. 13. How long did you remain in the employ of Goodyear as engineer?

A. I think it was until some time in 1854.

Q. 14. Did Haering remain there until you left?

A. He was there when I left.

And being cross-examined by counsel for complainants, he testifies as follows:

Q. 15. How long ago was your attention called to this question of the date of Mr. Haering's making plates for teeth?

A. About a year ago.

Q. 16. Who called your attention to it?

A. I testified in a case about a year ago; I don't recollect who called my attention to it; I think by Dr. Merriman, a dentist.

Q. 17. Prior to a year ago, had you occasion to think of it since the time Mr. Haering showed you the sets?

A. I have often thought of it when I *see* sets of rubber plates.

Q. 18. What have you thought about it when you have seen sets of rubber plates?

A. It brings back to mind the time when he made rubber plates.

166 Q. 19. Did the sight of rubber sets recall to you anything more than that Mr. Haering had at some time shown them to you?

A. I often wondered if he had ever made anything from it; if it had been any benefit to him.

Q. 20. When did you leave New Haven?
A. I think it was in 1854.
Q. 21. How did you fix the year when he showed you the sets?
A. By the place where I lived.
Q. 22. Where did you live at that time?
A. In Olive street. I moved there in 1851.
Q. 23. How long did you live there?
A. I lived there until I got through working for Mr. Charles Goodyear.
Q. 24. That is until 1854?
A. Yes.
Q. 25. And all you know about the time when he showed you these sets was that it was while you lived in Olive street, is it?
A. It was when I first moved there.
Q. 26. How did you fix the fact that it was when you first moved there?
A. Because Mr. Haering called on me when I first moved there and showed me some of these sets he had with *it*.
Q. 27. Did Mr. Goodyear have a heater for vulcanizing rubber?
A. He did.
Q. 28. Who had charge of it?
A. I did.
Q. 29. Were you there when the heater first came there?
A. I was; I put it up and attached the pipes to it.
Q. 30. When was this?
A. I think it was in 1851, or about that time; I couldn't say within a year.
Q. 31. How long was it after the heater was put up that Haering showed you the first plate referred to in your answer?
167 A. Six months or more.
Q. 32. When did Nelson Goodyear die?
A. I don't know.
Q. 33. Wasn't Nelson Goodyear dead when Haering showed you the plate?
A. I have no means of recollecting; I knew very little of Nelson Goodyear before he died.
Q. 34. When Haering showed you the first plate did he do so under injunction of secrecy?
A. He showed it to me with the request that I should say nothing to anybody about it at that present time.
Q. 35. Did not he, to your knowledge, tell Bevins of it?
A. I don't know that he did at that time.
Q. 36. How soon thereafter—that is, after he showed you the first plate?
A. I think it might have been six months, more or less.
Q. 37. In your 10th answer you say that "He (Haering) told me that Mr. Bevins wanted him to make a set of teeth, and asked me if he had better make them;" state how long after he showed you the first plate did he tell you so.
A. I should say it was some six months.
Q. 38. Who used the heater referred to in the 27th answer?
A. The heater was used for curing the goods, and Mr. Austin G. Day, Charles Goodyear, jr., Mr. Haering, and other workmen put the goods in, and I had charge of the heater after the goods were put in. It was my business to run the heater.
Q. 39. Do you know of Haering's going to Europe while in the employ of Charles Goodyear?

A. He since told me so. I didn't know at that time.

Q. 40. Was Bevins in the employ of Goodyear before you went there?

A. Not that I know of; I don't think he was.

Q. 41. When did he (Bevins) come to New Haven into Goodyear's employ?

A. I think it was as late as 1852. I have been working some time before he came.

168 Q. 42. Might it not have been in 1853 that Bevins came there?

A. It might have been; it certainly was as late as 1852, and it might have been 1853 or later.

Q. 43. Were you ever called as a witness by the defendants in a suit brought in the U. S. circuit court, southern district of New York, by Henry B. Goodyear, administrator, &c., against the New York Gutta-Percha Vulcanite Co. in the year 1861?

A. I was called as a witness by Austin G. Day.

Q. 44. Did you not testify in that suit that you were first employed by Mr. Charles Goodyear, in the summer of 1850, in the working of India-rubber, and were in his employ till March, 1853?

A. I think I did.

Q. 45. Were you also called as a witness for the defendants in a suit in the U. S. circuit court, southern district of New York, brought by Conrad Poppenhusen against Oscar Falke and others, in 1860?

A. I think I was.

Q. 46. Did you not, in that suit, in answer to the question, "Could any vulcanizing of articles have been done there while you had charge of the heater without your knowing it?" answer as follows: "I don't think there could?"

A. I don't know what I answered at that time. I can say, in substance, it was true that I knew what went into the heater.

Q. 47. And in answer to the question, "Do you know of either Robert or David Haering having anything to do with or about vulcanizing compound of India rubber between sheets of roofing-tin or sheet tin or tin-foil or sheet brass or any other metal, while you had charge of the heater?" did you not say, "I do not?"

A. I don't recollect, but such was the fact.

Q. 48. And in answer to the question, "What was the employment of Robert Haering and David Haering, after they commenced for Mr. Goodyear, when vulcanizing was done?" did you not answer as

169 follows: "I understood Mr. Robert Haering that he was employed by Mr. Goodyear to take care of the lithography, and his brother David was employed as printer; I often used to be in the shop, and saw them lithographing and printing; they had nothing to do with hard rubber or gutta-percha till the invention of the plaster moulds, which Mr. Robert Haering made, and brought them to me to be filled with India-rubber; after the invention of the plaster moulds, Robert Haering used to sometimes fill them himself with the prepared rubber, that is, prepared for hard compound; sometimes I assisted him for such things as knife-handles, medallion-boxes, and various other articles; this was about a year before I left, I think, and the plaster-mould patent was then being talked of?"

A. I did, I think, in substance, and such is the fact.

GEORGE W. HOMAN.

Subscribed and sworn to before me, this 14th day of August, 1869.

JOHN A. SHIELDS,
Examiner.

Examination of Mrs. Caroline Haering, New York, August 14th, 1869.

Present, the counsel for the respective parties.

CAROLINE HAERING, being duly sworn and examined as a witness in behalf of the defendant herein, deposes and says:

Q. 1. What is your name, age, and residence?

A. Caroline Haering; aged 52 years; and reside at No. 52 Fleet street, in the city of Brooklyn.

Q. 2. Are you the sister-in-law of Robert Haering?

A. I am.

Q. 3. In 1850 where did he reside?

A. In New Haven, Connecticut.

Q. 4. Do you know of his ever making dental plates of hard rubber; and, if so, when?

170 A. Yes, sir; I think it is between eighteen and nineteen years since.

Q. 5. Who did he make them for?

A. He made them for me.

Q. 6. State the circumstances under which he made them.

A. I was in New Haven, and my teeth were poor. He told me he could make me a set of teeth of rubber, and then he tried it; he used plaster of Paris to take the mould, and made me the first set.

Q. 7. How long did you have this first set?

A. I had this first set about two years; I could not wear them very well. Then he tried the second one, and he used wax to make the mould. He made a second set; these, also, were not very good; they were so black. My husband then asked him to make me a set of red gum; they were a little better, but still I could not wear them. Then I got an impression made by a dentist, a Dr. Wheat, and he made me a set, and took those teeth; he afterwards gave it to Dr. Newbrough.

Q. 8. What makes you think it was given to Dr. Newbrough?

A. A gentleman—I cannot recollect his name—asked me if I would give him the set, and that Dr. Newbrough would make me a set.

Q. 9. What makes you think it was nineteen years ago that the first set was made for you?

A. Because at that time I had a daughter, a small baby, who was just beginning to walk at that time, and she is now twenty years old.

Cross-examined:

Q. 10. Where did you reside when you say Mr. Robert Haering made you the first set of teeth?

A. In Williamsburgh, L. I.

Q. 11. Name the street and number of the house.

A. That was South Second street.

Q. 12. Where did you move to when you left Williamsburgh?

171 A. In Bay Ridge, near Fort Hamilton.

Q. 13. When was that?

A. That was fifteen or sixteen years ago.

Q. 14. Where did you go to live when you left Bay Ridge, and when was it?

A. To Brooklyn. This was about fourteen years ago.

Q. 15. Name the street in Brooklyn.

A. Gold street, between Fulton avenue and Willoughby street.

Q. 16. When did Mr. Haering make you the second set?

A. When I lived in Bay Ridge.

Q. 17. And when the third?

A. When I was in Brooklyn.

Q. 18. Then you admit that red-gum set was not made before 1855?

A. I cannot recollect very well.

Q. 19. Have you not given your affidavit some time in October, 1868, to the effect that the set of teeth put in red gum was made in about 1850?

A. Yes.

Q. 20. Why did you then swear that it was in 1850, when you now swear that it was when you lived in Brooklyn, that is fourteen years ago.

A. It was when I got the red set.

CAROLINE HARING.

Subscribed and sworn to before me, this 14th day of August, 1869.

JOHN A. SHIELDS,
Examiner.

172 The defendant then offered in evidence the English letters-patent granted to Edwin Thomas Truman and marked, "Defendant's Exhibit A."

Also, letters-patent granted to John B. Newbrough, assignee of Robert Haering, marked, "Defendant's Exhibit B."

Also, English letters-patent granted to Thomas Hancock, dated November 21st, 1843, and marked, "Defendant's Exhibit C."

Also, English letters-patent granted to Charles Hancock, dated January 12th, 1846, and marked, "Defendant's Exhibit D."

Also, English letters-patent granted to Charles Hancock, dated May 15th, 1846, and marked, "Defendant's Exhibit E."

Also, extracts from the printed reports of the United States Patent Office, for the year 1847, on pages 23 and following, and marked, "Defendant's Exhibit F."

Also, extracts from "Compte Rendue des Seances, &c.," or "Journal of the French Academy of Sciences," for August, 1861, page 125, and marked, "Defendant's Exhibit G."

Also, extracts from the reports of the international exhibition at London, 1851, on hard-rubber teeth, volume I, page 474, and marked, "Defendant's Exhibit H."

173 Also, extract from the "Official Report of the Juries of the International Exhibition, 1851, upon hard-rubber teeth and marked, "Defendant's Exhibit I."

Also, extracts from the American Journal of Dental Sciences, new series, volume 2, pages 332 and 574, July, 1852, and marked, "Defendant's Exhibit K."

Also, extracts from Harris' Dictionary of Medical and Dental Surgery, articles, "Caoutchouc" and "Gutta-percha," and marked "Defendant's Exhibit L."

Also, letters-patent granted to John B. Newbrough and E. Fagan, and dated October 29th, 1867, No. 70250, and marked "Defendant's Exhibit M."

Also, letters-patent granted to same, dated January 21st, 1868, No. 73545, marked, "Defendant's Exhibit N."

Also, letters-patent granted to same, dated January 28th, 1868, No. 73916, marked "Defendant's Exhibit O."

Also, letters-patent granted to same, dated January 28th, 1868, No. 73917, marked "Defendant's Exhibit P."

174 DEFENDANT'S EXHIBITS.

Defendant's Exhibit A.

English patent, No. 12241, to Edwin Thomas Truman, dated 15th August, 1848, constructing and fixing artificial teeth and gums, &c. Truman's specification.

To all to whom these presents shall come:

I, Edwin Thomas Truman, of 40 Haymarket, in the county of Middlesex, dentist, send greeting:

Whereas her present most excellent Majesty, Queen Victoria, by her royal letters-patent, under the great seal of the United Kingdoms of Great Britain and Ireland, bearing date the 15th day of August, 1848, in the 12th year of her reign, did for herself, her heirs, and successors give and grant unto me, the said Edwin Thomas Truman, my executors, administrators, and assigns, her especial license, full power, sole privilege, and authority, that I, the said Edwin Thomas Truman, my executors, administrators, and assigns, or such others as I, the said Edwin Thomas Truman, my executors, administrators, or assigns should at any time agree with, and no others, from time to time and all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend within England and Wales and the town of Berwick-upon-
175 Tweed, my invention of "Improved method or methods of constructing and fixing artificial gums, and of supplying deficiencies in the mouth," in which said letters-patent is contained a proviso that I, the said Edwin Thomas Truman, should cause a particular description of the nature of my said invention, and in what manner the same is to be performed, to be enrolled in her said Majesty's high court of chancery within six calendar months next and immediately after the date of said in part recited letters-patent, as by the same, reference being thereunto had, will more fully and at large appear.

Now know ye that, in compliance with the said proviso, I, the said Thomas Truman, do hereby declare that the nature of my said invention, and the manner in which the same is to be performed, are fully described and ascertained in and by the following statements thereof; that is to say, my invention consists first in employing gutta-percha in the manufacture of teeth and gums, and in making good other defects in the mouth in connection therewith; and secondly, my invention consists of improvements in the manufacture of artificial teeth and gums by employing the process of electrotyping in coating soft surfaces.

And in order that my invention may be most fully understood and readily carried out I will proceed to explain the means pursued by me.

It is usual in making artificial teeth to obtain a cast, by means of wax in the mouth, in its imperfect state, showing the parts to be made up by artificial teeth and gums, and from such cast a plaster mould is obtained, and if there is any defect in the mouth near the gums, then such model represents such defects as well as the loss of teeth. The means of obtaining such plaster mould being well understood it will not be necessary for me to enter into a description thereof.

Having got a model of the mouth in plaster hardened in the usual way with resin, &c., I proceed to construct a metal frame, by preference of gold, either of wire or otherwise, the purpose of which is to
176 give support to the pins for artificial teeth, and to strengthen the piece where it would otherwise be weak, if it be a case that requires such strength, as in lower-jaw cases, when the plate or bar has hitherto

passed behind the remaining teeth, and as this frame is not in the finished case, either to touch the gum or the remaining teeth, but to be enclosed in gutta-percha it is not necessary that it should fit the model, but merely that it should be constructed to effect the purposes above named. The teeth being prepared of the proper height and color, I solder pins to receive them in the above mentioned frame in their proper places, in the same manner I should if placing them on a gold plate of the usual make; but it is not necessary to fit them to the frame, as the gutta-percha forms sockets around and under them in like manner as teeth naturally articulated in the jaw. I then proceed to mould or form the gutta-percha, which I prefer to have as pure as I can purchase it, gutta-percha when heated being, as is well known, very plastic and readily pressed into any form. Then I place it on the plastic mould, previously wet with cold water, in such manner as to bring the teeth, when placed on their respective pins, into their proper places to supply the deficiency. I then proceed to mould the gutta-percha into the proper form, to replace all the lost structures without altering the surface which touches the model; this I effect either by again making it hot with water or by the aid of heated instruments or by both as the case may require; but for this part of my invention I give no fixed rule, as it must depend on the case, and the gutta-percha must, at the same time, if necessary, be carried over the other parts of the mouth not hitherto deficient, as has been the custom with gold plate or other substances either to equalize pressure or give support.

By this means the gutta-percha will, with the new teeth, fit those parts of the mouth where wanting; and in order to make up for any imperfections in the plaster moulds I warm the gutta-percha of the artificial teeth, constructed as above explained, and place the same
177 into the mouth and press it into position by which it will become perfectly adapted to the mouth. I then remove the same from the mouth and take the teeth off the pins by which the sockets in the gutta-percha will be left empty. I then coat over the pins with wax or other matter which will prevent deposit of gold in the process of electro-gilding which I now cause to be performed within the sockets; also, on outer and inner surfaces of the gutta-percha, leaving the surface thereof which comes next to the gums, so that a surface of gutta-percha shall come next to the gums; and such is the peculiar property of this matter that it may be made most accurately to fit the gums, cavities, and imperfections of the mouth near the gums, and artificial teeth thus made will not require any other mode of fixing, when in the mouth, that what results from a good fit. I do not, however, say that in no case other fastenings may not be required, but in all cases which have come before me I have not found other fastenings necessary. The electro-gilding will line the sockets for the teeth and also the external surfaces, such electro-gilding being performed, as is well understood, by preparing the surfaces to be gilted in the ordinary manner. The teeth are then to be fixed on to the pins and into the sockets by cement, as heretofore when using gold plates, and any of the various descriptions of teeth are to be employed to which separately I make no claim. It is not essential to making artificial teeth and gums, according to my invention, that the gutta-percha used should be coated with gold, and I would state that although I prefer to use gutta-percha alone, I do not confine myself thereto, as coloring or other matter may be used therewith.

In carrying out the second part of my invention, in place of using gutta-percha and electro-gilding, as above explained, I employ hard wax or other matter which may be readily moulded or shaped in the

forms described in respect to gutta-percha; and then by electro-gilding the same all over I can obtain artificial teeth filling with great accuracy, and according to this plan the moulded or shaped may be such as would be unsuited to be worn in the mouth if it were not for the coating
178 with gold which will not only give strength, but also prevent any moisture getting to the interior matter which constitutes the setting of the teeth.

Having thus described the nature of my invention and the manner in which the same is to be performed, I would state in respect to first part of my invention that I am aware that gutta percha has been before employed for *temporally* filling up a space in the mouth caused by removing a tooth or teeth, and the same has been allowed to remain till artificial teeth for filling such space have been prepared; and further, I have been informed that gutta-percha has been used for making good some defects in the mouth, but not in connection with artificial teeth and gums.

I mention these particulars in order to state that I make no claim to such use of gutta-percha; but what I claim is:

First. The manufacturing of artificial teeth and gums and making good other deficiencies in the mouth in connection therewith, by employing gutta-percha; and I also claim the coating the surfaces thereof with metal. And—

Secondly. I claim the application of electro-gilding in the manufacture of artificial teeth and gums as a coating to soft materials, as herein explained.

In witness whereof I, the said Edwin Thomas Truman, have hereunto set my hand and seal this 15th day of February, 1849.

EDWIN THOMAS TRUMAN. [L. S.]

And be it remembered that, on the 15th day of February, in the year of our Lord 1849, the aforesaid Edwin Thomas Truman came before our said lady, the Queen, in her chancery, and acknowledged the specification aforesaid, and all and everything therein contained and specified in form above written, and also the specification aforesaid was
179 stamped according to the tenor of the statute made for *for* that purpose.

Enrolled the 15th day of February, in the year of our Lord 1849.

ANDERSON.

180 *Defendant's Exhibit B.*

Letters-patent granted to John B. Newbrough, assignee of Robert Haering, No. 85927.

The United States of America to all whom these letters-patent shall come:

Whereas Robert Hearing, of Melrose, New York, has alleged that he has invented a new and useful improved mode of moulding artificial teeth, (he having assigned his right, title, and interest in said invention to John B. Newbrough, of New York, New York,) and has made oath that he is a citizen of the United States; that he verily believes he is the original and first inventor or discoverer of the said invention, and that the same hath not, to his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents, praying that a patent may be issued therefor.

These are, therefore, to grant to the said John B. Newbrough, his executors, administrators, or assigns, for the term of seventeen years from the nineteenth day of January, one thousand eight hundred and sixty-nine, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention, a description
181 whereof is given in the annexed schedule, and made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office to be hereunto affixed.

Given under my hand at the city of Washington, this nineteenth day of January, in the year of our Lord one thousand eight hundred and sixty-nine, and of the independence of the United States of America the ninety-third.

[L. S.]

C. W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

ELISHA FOOTE,
Commissioner of Patents.

182 UNITED STATES PATENT OFFICE.

Robert Haering, of Melrose, New York, now residing in Montreal, Canada, assignor to John B. Newbrough, of New York, New York.—Letters-patent No. 85927, dated January 19, 1869.—Improved mode of mounting artificial teeth.

The schedule referred to in these letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, Robert Haering, of Melrose, Westchester County, New York, now residing in Montreal, Canada, have invented an improvement in mounting artificial teeth; and I do hereby declare the following to be a full, clear, and exact description of the same:

My invention relates to an improvement in securing artificial teeth upon bases or plates of hard or vulcanized rubber or other gum.

In order to enable others skilled in the art to practise my invention, I will now proceed to describe the manner of carrying it into effect.

A plaster cast of the mouth to which the teeth are to be fitted is first made. A coating of wax, corresponding in shape and thickness to the "base" required, is then applied to the cast, and round the bases of the teeth, which are thus held in their proper position.

The teeth and base are now covered with plaster, which is applied in a soft state, but soon hardens, forming the second division of a
183 mould, the other part of which is the cast first made.

After the portion of the mould last made has hardened, the two divisions are separated, the wax is removed, and prepared rubber is substituted for the same, the sections of the mould being brought together so as to force the gum into all the interstices formerly occupied by the wax.

The mould is then placed in an oven and subjected to heat for such a length of time as may be necessary to harden the gum.

When the operation is complete, the plaster is broken away, and the teeth will be found securely "set" or "mounted" on a base of gum, which is hard, tough, corresponds in shape to the wax base first made, and possesses many advantages over bases made of ordinary materials.

Without here claiming broadly the application of hard rubber or gum as a base for artificial teeth, I claim as my invention, and desire to secure by letters-patent—

Artificial teeth having gum bases, to which the teeth are secured, as described; that is, by "setting" the teeth in prepared gum on a mould, embedding the whole in plaster, and hardening the gum by the application of heat.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

ROBERT HAERING.

Witnesses:
SAM. JOHN STORRS,
JOHN A. FOSTER.

184 *Defendant's Exhibit "C."*

English letters-patent granted to Thomas Hancock, November 21st, A. D. 1843, No. 9952. Preparing caoutchouc in combination with other substances. Hancock's specification.

To all to whom these presents shall come:

I, Thomas Hancock, of Goswell Mews, Goswell road, in the county of Middlesex, waterproof-cloth manufacturer, send greeting:

Whereas her present Majesty, Queen Victoria, by her letters-patent under the great seal of the United Kingdoms of Great Britain and Ireland, bearing date at Westminster, the twenty first day of November, now last past, did give and grant unto me, the said Thomas Hancock, her especial license, full power, sole privilege, and authority, that I, the said Thomas Hancock, my executors, administrators, and assigns, or such others as I, the said Thomas Hancock, my executors, administrators, or assigns should at any time agree with, and no others, from time and at all times thereafter, during the term of years therein expressed, should and lawfully might make, use, exercise, and vend within England, Wales, and the town of Berwick-upon-Tweed, my invention of "An improvement or improvements in the preparation or manufacture of
185 caoutchouc in combination with other substances, which preparation or manufacture is suitable for rendering leather, cloth, and other fabrics water-proof, and to various other purposes for which caoutchouc is employed," in which said letters-patent there is contained a proviso, obliging me, the said Thomas Hancock, by an instrument in writing under my hand and seal, particularly to describe and ascertain the nature of my said invention, and in what manner the same is to be performed, and to cause the same to be enrolled in her said Majesty's high court of chancery, within six calendar months next immediately after the date of the said letters-patent, as in and by the same, reference being thereunto had, will more fully appear.

Now, know ye that, in compliance with the said proviso, I, the said Thomas Hancock, do hereby declare that the nature of my said invention, and the manner in which the same is to be performed, is particularly described and ascertained as follows, that is to say:

The nature of my improvement or improvements in the preparation or manufacture of caoutchouc, in combination with other substances, consists in diminishing or obviating their clammy adhesiveness, and also in diminishing or entirely preventing their tendency to stiffen and harden by cold, and to become softened or decomposed by heat, grease, and oil. I will first describe the means by which I correct, obviate, or lessen the

clammy adhesiveness of caoutchouc, and caoutchouc in combination with other substances; and I would first premise that as the essential oils employed in softening and dissolving caoutchouc are ultimately almost entirely evaporated, I wish to be understood, when speaking of proportions, the dry materials are meant; more or less solvent may be used, according as it may be convenient, to employ the combination in a stiff and plastic state, or diluted in any degree down to the consistence of painters' varnish. I take ten pounds of caoutchouc, and pass it two or three times between iron rollers until a roughly-uniform sheet is
186 obtained. I then take twenty pounds of silicate of magnesia (sometimes called Venetian or French chalk and talc) and reduce it to a fine powder, and I continue rolling the sheet, sifting the silicate upon it as it passes through or between the rollers, and I carry on this operation until the whole is well mixed in; I then work up the mass into a state of uniform consistence by means of the machine or apparatus commonly employed in making what is called manufactured caoutchouc, which machine is fully described in the specification of a patent granted to me on the eighteenth day of April, one thousand eight hundred and thirty-seven.

If the mass is intended for cutting into sheets or other forms I press it in moulds, and cut it up in the manner commonly practised and well known to persons acquainted with such manufactures. When I require this combination in the form of large sheets, and they are not required of very fine quality, I pass it between rollers, begin'ing with them rather wide apart, and gradually closing them each time of passing through until they produce the thickness I want. The rollers may be used cold or heated to about 80 degrees Fahrenheit. When it is required to spread the combination on cloth either for the purpose of rendering a previous coating of caoutchouc unadhesive, or upon the surface of the cloth itself, I proceed to soften the combination by the application of a small quantity of solvent, so as to make it of the consistence of dough or putty, in the manner set forth in the before specification of a patent granted to me in one thousand eight hundred and thirty-seven, in respect to caoutchouc, and I spread it also in the manner and by a spreading-machine similar to the one therein described. If very thin sheets or films are required I spread the combination on cloth previously saturated with size, and proceed with this operation in the manner as is set forth with respect to caoutchouc sheets under a patent granted to me bearing date the twenty-third day of January, one thousand eight hundred and thirty-
eight. The combination in this state, if not of too soft a consist-
187 ence, may be spread by means of iron rollers into sheets, either alone or upon cloth, so as to remain permanently attached to the same, or upon sized cloth, to be afterwards stripped off; the surface of the iron in contact with the sheet should be kept wet, to lessen or prevent adhesion. Instead of a smooth even face, I sometimes obtain impressions on the surface by pressure between plates previously engraved of the desired pattern, or, by means of rollers, by engraving one or both so as to produce the required graining or device; these plates or rollers may be used cold, or if the consistence of the combination is hard and stiff they may be heated to any required degree. If a dead or dull matted appearance is required, I pass woolen cloth or other suitable fabric through or between the rollers in contact with the coated surface of the cloth or sheet, and afterwards strip off the fabric, which should be previously sized as before stated. By these and similar means I frequently give to sheets of the combination, or to fabrics coated with it, a very close resemblance to a variety of woven or other manufactures,

some of which may be used as substitutes for the article imitated. For coarse and cheap articles a proportions of washed *linen* or fuller's-earth dried and sifted very fine may be mixed with the silicate, and the quantity of the latter proportionately reduced. I sometimes make the exterior of an article of a combination that will be unadhesive and of fine materials, and the interior of a combination containing either more caoutchouc, or more of the lime or fuller's-earth, as the case may require.

The combinations hereinbefore described will be of a light drab color, or of a darker shade, according to the proportion of the silicate; but if required of other colors, I mix the color with a thin solution of caoutchouc, as mentioned in the specification of my patent of the twenty-third day of January, one thousand eight hundred and thirty-eight. When a dark color is not objectionable, I employ asphalte instead of or combined with the silicate. The combination of asphalte with caout-
188 chouc may be effected in the dry state by reducing the asphalte to a fine powder, and treating it in the same manner, as before stated, in respect to the silicate. Plumbago may also be introduced when the colour is dark. I find that from six to seven pounds of asphalte, according to its quality, to eight pounds of caoutchouc answers the purpose; if silicate also is used, the quantity of asphalte should be proportionately less.

When this combination is required for spreading on cloth, or for thin sheets, I soften it, and treat it in the same manner as before described for the silicate. If it is wished, more asphalte or silicate may be added during this operation. Nearly the same results are obtained by dissolving the asphalte in coal nap'tha, and employing such solution, instead of nap'tha or other solvent, in softening the caoutchouc to bring it to a suitable consistence for the spreading-machine; and, if silicate is employed with the asphalte, it may be sifted in as directed in respect of coloring matters in the specification before referred to of one thousand eight hundred and thirty-seven.

Raised patterns may also be produced on the surface by the means before described. These combinations may be manufactured into sheets and various other articles, or applied generally to caoutchouc and caoutchouc manufactures, where it is desirable to obviate the clammy adhesiveness of the surface; and I apply them for the purpose of rendering cloth more or less water-proof by means of the spreading-machine before alluded to, and to other purposes by means of a spatula or other convenient instrument, and in a more diluted state in the manner of painting or varnishing with a common brush. Of course the different proportions may be varied according to the purposes to which the combinations are to be applied. It may be necessary here to observe that all the substances employed in the before-mentioned combinations have a tendency to weaken, more or less, the elastic properties of caoutchouc, and, in particular, the proportion of silicate of magnesia may be increased until the caoutchouc is nearly deprived of those properties. Any person practically acquainted with caoutchouc man-
189 ufactures will be able, from the descriptions already given, to obtain the proper consistence and quality, and to adapt the combinations to the various purposes for which they may be required.

It is well known that caoutchouc stiffens and becomes hard when exposed to a cold temperature, and that it is liable to become soft and decomposed by heat and exposure to the atmosphere, and by contact with oil or grease; that it is easily acted upon by solvents, and its elastic properties weakened by the means usually employed for its manufacture. I diminish or obviate these effects by intimately blend-

ing sulphur with the caoutchouc during the process of its manufacture or preparation, and then treating the combination in the manner hereafter described.

Sulphur may be blended with caoutchouc in various ways, but the following I find to answer the desired purpose:

I melt in an iron vessel a quantity of sulphur at a temperature ranging from about 240 to 250 degrees Fahrenheit, and immerse in it the caoutchouc, previously rolled into rough sheets or cut to any convenient form or size, and allow it to remain until the sulphur has penetrated quite through the caoutchouc, which may be ascertained by cutting a portion of it asunder with a wet knife. If the operation is complete, the colour of the caoutchouc will be changed throughout to a yellowish tint. If there be only a margin of yellow around the cut part, the operation must be continued longer until the whole is changed. The sulphur adhering to the surface being scraped off, the caoutchouc will then have taken up a quantity of sulphur from one-sixth to one-tenth of its weight.

With caoutchouc thus prepared I proceed with the further manufacture of it into the consistence of dough or putty, or make solutions of it, and spread it on cloth or into sheets in the manner already stated or referred to.

Sulphur may also be blended with caoutchouc by reducing the former to a fine powder, and mixing it mechanically in the manner and
190 by the means before mentioned for silicate of magnesia. Sulphur may also be blended with the surface of some articles, such as sheet caoutchouc, by heating the latter to about 200 degrees, and sifting and rubbing flowers of sulphur on it.

Instead of the preceding, I sometimes blend sulphur with caoutchouc by means of a solvent. In that case I saturate the solvent I mean to employ with as much sulphur as it will take up by boiling, and employ as much of this saturated solvent as will, after evaporation, leave the requisite proportion of sulphur before indicated blended with the caoutchouc.

When this saturated solvent is allowed to cool, any excess of sulphur will fall down in crystals. If, therefore, for any purpose it is wished to employ a larger proportion of sulphur, it must be kept hot. I prefer, in this case, to use oil of turpentine as the solvent.

Either of the foregoing, or any other convenient mode, may be adopted for blending the sulphur and caoutchouc together, care being taken to ensure as much as possible a uniform mixture.

The silicate of magnesia, and the other substances mentioned in the first part of this specification, may, if wished, be mixed with the combination of sulphur and caoutchouc in such proportions as may be necessary to obviate or correct the clammy adhesiveness before mentioned; but I wished it to be clearly understood that the combination of the silicate of magnesia with caoutchouc has the effect in all cases of lessening its elastic properties in proportion to the quantity of silicate employed.

This combination of sulphur and caoutchouc, and of sulphur and caoutchouc mixed with the silicate of magnesia, and the other substances before mentioned, may be applied to various purposes in the manner hereinbefore stated or referred to, and introduced by similar or other convenient means into caoutchouc manufactures.

Having described the method by which I blend sulphur with caoutchouc, and the manner in which I apply the same to various
191 purposes, I would here observe that the combination is still as

soluble as before, and has not yet undergone the change or modification by which the improvement or improvements contemplated in this portion of my invention are carried out. When caoutchouc alone is to be operated upon, I find that the desired effect, which for brevity sake I will hereafter call the change, may be produced by immersing the caoutchouc in melted sulphur, as hereinbefore mentioned. I then raise the temperature to 300 degrees, or from 300 degrees to 370 degrees, and continuing it so immersed for a longer or shorter period, according to the thickness or bulk of the caoutchouc, or to the extent to which the change is to be carried; for instance, if sheet caoutchouc one-sixteenth of an inch thick is continued in sulphur at 350 degrees to 370 degrees from ten to fifteen minutes, the change before alluded to is produced; or, instead of so high a temperature, the sulphur is raised only from 310 to 320, and the caoutchouc immersed it from fifty to sixty minutes, the result will be much *he* same, and, if continued for two hours at the same temperature, the effect will be proportionably increased, and, if continued longer, the caoutchouc becomes of a darker colour, and nearly loses its property of stretching, and, if carried still further, turns nearly black, and has something the appearance of horn, and may be pared with a knife similarly to that substance.

By the effect of this high temperature such a change in, or modification of, the properties of the caoutchouc, and most of its combinations, will be produced, that the elastic force or property of manufactured caoutchouc to recover its form, after being extended, is greatly increased; and it will, after being so treated, also resist to a considerable extent the action of heat, oil, and grease, as well as of the effect of cold, and be more capable of resisting the menstura by which caoutchouc is commonly dissolved. I would here observe that the temperature and time which have been stated produce a degree of change suitable for many purposes, but may be varied discretionally; and I would here make this general remark, that the higher the temperature the
192 shorter is the time required; and, on the contrary, a lower temperature requires a longer time. And I would here observe that the proportion of sulphur is, to a certain extent, increased by a continued immersion, and the time and temperature just indicated is equally applicable to the combinations of caoutchouc and sulphur with the silicate of magnesia and other substances mentioned in the first part of this my specification.

The sulphur which adheres to the surface may be easily removed by friction or scraping. I employ this mode of operating in preference generally, where practicable, particularly for articles made of manufactured caoutchouc, such as sheets and thread for elastic manufactures, whether made from manufactured caoutchouc or the raw material as imported.

When the combination is spread upon cloth or attached to other substances capable of enduring the necessary temperature, I pass such articles over plates or cylinders heated sufficiently to effect the change; if the side on which the combination of caoutchouc and sulphur is spread is brought into contact with the heated surface of the plate or cylinder, the temperature and the time in contact formerly indicated in respect of melted sulphur will answer the purpose; and this is the mode I prefer in cases where substances, such as leather, coated with the combination will not so well endure a high temperature; but when the combination is spread on cloth or other substance which is to be brought into contact with the heated surface, the temperature will require to be raised, or the article longer exposed to it, according to the extent to which the

heat is impeded by the thickness or quality of the intervening substance, which may be easily ascertained by testing small pieces as a guide. In some cases, such as for the strapping on the seams of garments, it may be useful to employ hot irons to effect the change.

Another mode of submitting the articles to the necessary temperature is by means of a stove heated to the required degree, which
193 degree and the proper period for the article to remain in it, must, as before stated, depend on the nature of the case; if it is sheet caoutchouc or thread, or any similar article, the time and temperature before indicated will answer according to the extent to which the change is to be carried, or the size or bulk of the article to be operated on. If the article is partly composed of cloth coated on one side, as, for instance, a single texture of calico rendered water-proof by a very thin coating of the combination a temperature of from 290 to 300 will be sufficient, and the period for remaining in or passing through the stove from one and a half to two minutes. If a thicker coat of combination is laid on the calico, a somewhat longer time must be given; and so in respect of a union of two plies of cloth, the time and temperature must be regulated according to the thickness of the textures and the interposed coating of the combination. When a greater number of plies of cloth are required to be united, as in the manufacture of artificial leather for straps, card-backs, hose-pipe, and the like, I proceed as in the case just mentioned; but if from the thickness of the cloth or the number of plies required, I conceive the heat will not readily or sufficiently penetrate the mass, I unite two folds of the cloth first, and pass them through the stove until the change is effected; I then unite another fold to the former, and pass it again through the stove, and so proceed until the required number of folds are united; and, if required, I lastly coat the surfaces in the above manner, and finish by again submitting the whole to the stove.

Another mode of obtaining the temperature for effecting the change is by immersing the articles in water or steam under pressure raised to the required temperature. I find that a very small quantity of boiled linseed oil, stearine, or spermaceti, introduced with the sulphur communicates an agreeable smoothness to the surface.

I would here also remark, that when surfaces are to be united, the union should be effected before the change takes place.

When the combination is required for purposes where it could
194 not be conveniently used of the consistence of dough, such as for saturating cloth, felt, or other similar purposes, or for coating uneven surfaces, I dilute it with solvent to any required consistence, and apply it with a brush or other convenient means, and afterwards submit the articles to the influence of heat in the manner already described, or by any other that may be convenient. The sulphur may, if required, be more or less discharged from the caoutchouc after it has undergone the change by submitting it to the known solvents of sulphur, of which I prefer a solution of the sulphite of soda in water kept to a temperature of about 200 degrees.

Other and similar modes may be devised for carrying these improvements into effect; but enough has now been said to enable any person of common skill and practically acquainted with caoutchouc manufactures, to follow out these operations with success. What I claim as my invention and discovery is:

First, The combination of caoutchouc with silicate of magnesia, whereby manufactured caoutchouc is rendered free from that clammy and adhesive character, which it usually possesses.

Secondly, I claim the modes herein described of combining asphalte with caoutchouc; and,

Thirdly, I claim the treating of caoutchouc (either alone or in combination with other substances) with sulphur when acted on by heat, and thus changing the character of caoutchouc, as herein described.

In witness whereof I, the said Thomas Hancock, have hereunto set my hand and seal this twenty-first day of May, one thousand eight hundred and forty-four.

THOMAS HANCOCK. [L. S.]

195 And be it remembered that, on the same twenty-first day of May, in the year above mentioned, the aforesaid Thomas Hancock came before our lady, the Queen, in her chancery, and acknowledged the specification aforesaid, and all and everything therein contained in form above written, and also the specification aforesaid was stamped according to the tenor of the statute in that case made and provided.

Inrolled the same twenty-first day of May, in the year above written.

S. DUCKWORTH.

196 Hancock's memorandum of alteration.

To all to whom these presents shall come:

I, Thomas Hancock, late of Goswell Mews, but now of Stoke Newington, in the county of Middlesex, esquire, send greeting:

Whereas her most excellent Majesty, Queen Victoria, by her letters-patent under the great seal of the United Kingdom of Great Britain and Ireland, bearing date at Westminster, the twenty-first day of November, in the seventh year of her reign, did for herself, her heirs, and successors, give and grant unto me, the said Thomas Hancock, my executors, administrators, and assigns, her especial license, full power, sole privilege, and authority, that I, the said Thomas Hancock, my executors, administrators, or assigns, or such others as I, my executors, administrators, or assigns, should at any time agree with, and no others, from time to time, and all times thereafter, during the term of years therein expressed, should and lawfully might make, use, exercise, and vend within that part of the said United Kingdom, called England, the Dominion of Wales, and town of Berwick-upon-Tweed, my invention of "An improvement or improvements in the preparation or manufacture of caoutchouc in combination with other substances, which preparation or manufacture is suitable for rendering leather, cloth, and other fabrics water-proof, and *and* to various other purposes for which caoutchouc is employed;" and, whereas I, in pursuance of a proviso in the said in part recited, letters-patent contained, did cause a particular description of the nature of my said invention, and in what manner the same is to be performed, by an instrument in writing under my hand and seal, to be enrolled in her said Majesty's high court of chancery, on the
197 twenty-first day of May, in the year of our Lord one thousand eight hundred and forty-four; and, where I, the said Thomas Hancock, am desirous for good and sufficient reasons hereinafter mentioned, to enter a memorandum of alteration in the said specification, and have obtained leave of her Majesty's attorney general, certified by his fiat and signature according to the form of the statute in that case made and provided:

Know ye, therefore, that I, the said Thomas Hancock, do hereby enter the following memorandum of alteration, that is to say:

In that part of the specification where it is stated that "having described the method by which I blend sulphur with caoutchouc, and the manner in which I apply the same to various purposes, I would here observe that the combination is still as soluble as before," I add the words: "except when I use solvent that has been saturated at a high temperature, as in the case of oil of turpentine." And I, the said Thomas Hancock, do also hereby declare that my reasons for making and entering the above memorandum of alteration are as follows:

That without such alteration the said specification and the description of the said invention would be obscure and not fully explained. And I do further declare that the above memorandum of alteration is not such an alteration as will extend the exclusive right granted by the said letters-patent.

In witness whereof I have hereunto set my hand and seal this thirteenth day of October, in the year of our Lord one thousand eight hundred and forty-five.

THOMAS HANCOCK. [L. S.]

Signed, sealed, and delivered in the presence of—
F. G. ABBOT, *Solicitor.*

198 ROLLS YARD, CHANCERY LANE.

This is to certify that the within-named Thomas Hancock has applied to me for leave to enter the within-written memorandum of alteration of part of the specification of a certain invention for which letters-patent were duly granted to him under the great seal of Great Britain, dated at Westminster, the twenty-first day of November, in the year of our Lord one thousand eight hundred and forty-three, and the specification of which was enrolled on the twenty-first day of May, one thousand eight hundred and forty-four. And having considered of the said application, and no objections having been made to the same, I have accordingly granted leave to the said Thomas Hancock to file his said memorandum of alteration pursuant to the statute passed in the fifth and sixth years of the reign of his late Majesty King William the Fourth entitled "An act to amend the law touching letters-patent for inventions."

FRED'K THESIGER.

TEMPLE, *October 14th*, 1845.

Inrolled the fourteenth of October, in the year above written.

199 *Defendant's Exhibit "D."*

English letters-patent granted to Charles Hancock, January 12, A. D. 1846, No. 11032. Manufacture and application of gutta-percha. Hancock's specifications.

To all to whom these presents shall come:

I, Charles Hancock, of Grosvenor Place, in the county of Middlesex, send greeting:

Whereas her present most excellent Majesty, Queen Victoria, by her royal letters-patent under the great seal of Great Britain, bearing date at Westminster, the twelfth day of January, in the ninth year of her reign, did for herself, her heirs, and successors, give and grant unto me, the said Charles Hancock, my executors, administrators, and assigns,

or such others as I, the said Charles Hancock, my executors, administrators or assigns, should at any time agree, and no others, from time to time, and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England, Wales, and the town of Berwick-upon-Tweed, my invention of "certain improvements in the manufacture of gutta-percha, and its applications alone and in combination with other substances," in which said letters-patent is contained a proviso, that I, the said Charles Hancock, shall cause a particular description of the nature of my said invention, and in what manner the same is to be performed, to be inrolled in her
200 said Majesty's high court of chancery within six calendar months next, and immediately after the date of the said in part recited letters-patent, as in and by the same, reference being thereunto had, will more fully and at large appear.

Now know ye that, in compliance with the said proviso, I, the said Charles Hancock, hereby declare that the nature of my said invention, and in what manner the same is to be performed, are fully described in and by the present specification thereof, reference being had to the drawing hereunto annexed, that is to say:

* * * * * * *

Fifthly. My invention consists in imparting, by the following process, to gutta-percha and its various combinations with caoutchouc and jintawan, when orpimented or sulphuretted, as aforesaid, almost any degree of hardness and tenacity without injury to its water-repellent property. I take the gutta-percha, or gutta-percha compound, after it has gone through the process described under the third head of this specification, and while it is yet in a plastic state, and press it into moulds, which I bind tightly together with iron plates, screws, and nuts; I then place these moulds in a chamber or vessel, raised by steam or hot air to a temperature of from three hundred to three hundred and eighty degrees, for from one to five or six days, varying the degree of heat and the time of exposure to it, according to the degree of hardness or tenacity required; after which I set the moulds aside to cool slowly.

The gutta-percha and gutta-percha compounds may be so hardened by this means as to be turned in the lathe like wood or ivory, and they are, according to this process, rendered applicable to a great variety of purposes, for which they could not, in any other state, be suitable, such as ornamental and architectural purposes, picture-frames, knife and sword handles, door-handles and pannels, walking-sticks, chessmen, seal-holders, paper-cutters, combs, flutes, musical keys, buttons,
201 pulleys, and vessels of capacity, &c. The material may be either at once formed into any of these articles by making the moulds of the form and figure of the articles, or it may be produced, in the first instance, in plain blocks and afterwards cut up and fashioned at pleasure by such tools and instruments as are ordinarily used for like purposes.

* * * * * * *

In witness whereof I, the said Charles Hancock, have hereunto set my hand and seal this eleventh day of July, in the year of our Lord one thousand eight hundred and forty-six.

CHARLES HANCOCK. [L. S.]

And be it remembered that the instrument aforesaid was stamped according to the tenor of the statute made in fifty-fifth year of the reign of his late Majesty, King George the Third.

Inrolled the eleventh day of July, one thousand eight hundred and forty-six.

202 *Defendant's Exhibit "E."*

English letters-patent granted to Charles Hancock, May 15, A. D. 1846, No. 11208. Manufacture and application of gutta-percha. Hancock's specifications.

To all to whom these presents shall come:

I, Charles Hancock, of Grosvenor Place, in the county of Middlesex, artist, send greeting:

Whereas her present most excellent Queen Victoria, by her letters-patent under the great seal of the United Kingdom of Great Britain and Ireland, bearing date at Westminster, the fifteenth day of May, in the ninth year of her reign, did give and grant unto me, the said Charles Hancock, my executors, administrators, and assigns, her especial license, full power, sole privilege, and authority, that I, the said Charles Hancock, my executors, administrators, or assigns, and such others as I, the said Charles Hancock, my executors, administrators, or assigns should at any time agree with, and no others, from time to time and at all times thereafter during the term of years therein mentioned, should and lawfully might make, use, exercise, and vend within England, her Dominion of Wales, and town of Berwick-upon-Tweed, and also in the Islands of Jersey, Guernsey, Alderney, Sark, and Man, and in all her colonies and plantations abroad my invention of "Certain improvements in the manufacture of gutta percha, and its appli-
203 cations, alone and in combination with other substances;" in which said letters-patent is contained a proviso requiring that I, the said Charles Hancock, shall particularly describe and ascertain the nature of my said invention, and in what manner the same is to be performed, by an instrument in writing under my hand and seal, to be inrolled in her said Majesty's high court of chancery within six calendar months next and immediately after the date of the said in part recited letters-patent, as reference being thereunto had will more fully and at large appear.

Now, know ye that, in compliance with the said proviso, I the said Charles Hancock, do hereby declare that the nature of my invention and the manner in which the same is to be performed, are particularly described and ascertained in and by the present instrument in writing, that is to say:

* * * * * * *

Secondly. My invention consists of new modes of giving shape and configuration to articles to be made of gutta-percha and its compounds in the manufacturing of such articles, and also of new modes of ornamenting such articles of manufacture. The compounds of gutta-percha most applicable for this purpose are to be produced by mixing gutta-percha with caoutchouc and jintawan, or either of them, and thoroughly blending the several materials into one homogeneous mass, in the manner described in my specification of my invention comprised in my patent for England, granted to me on the twelfth day of January last for my invention, therein entitled "Certain improvements in the manufacture of gutta-percha, and its applications alone and in combination with other substances;" or by adding to the mixtures or compounds aforesaid bronze or other metallic powders, plaster of Paris, or other

earthy powders, pigments, fibrous materials cut up short, paper pulp or dust, or any other suitable materials.

The relative proportions of the materials to be combined are to be regulated according to the qualities which the compound article
204 is desired to possess. Gutta-percha and its compounds when in a plastic state may, with great facility, be moulded into almost any form or shape which the manufacturer may wish to assume, and this may be done by means of moulds, patterns, shapes, dies, &c., in a manner hereinafter described. Gutta-percha and its compounds when in a state of solution may be also applied to moulds, patterns, shapes, &c., so that when several layers thereof have been dried upon such moulds and then removed therefrom, articles of manufacture may be obtained of the required shape or configuration, as hereinafter described.

So also, in forming articles of several sheets or pieces of gutta-percha or its compounds, the sutures or joints thereof may be softened or made plastic by the application of heat, and joined permanently together by pressure whilst in that state; or such sutures or joints may have gutta-percha or gutta-percha compound in a state of solution applied thereto, as or by way of cement, and the sutures or joints being kept close until the solution has been dried, the parts will be permanently united together. Excellent moulds, forms, or shapes may be made of gutta-percha or its compounds for the purpose of being used or applied in giving form, shape, or figure to articles to be made of gutta-percha or its compounds, or of such other substances as can be moulded at a low temperature, although several pieces of gutta-percha or of its aforesaid compounds, have the property when in a warm and soft or plastic state of uniting together and becoming one entire homogeneous mass, yet a piece of gutta-percha or any of its compounds when in a plastic state will not adhere to any other piece of gutta-percha, or of any of its said compounds, which is in a cold and rigid, and therefore not in a plastic state. In order to make a mould, form, or shape of gutta-percha or of any of its compounds, I take a pattern of the article in the production of which the mould, form, or shape is intended to be used, and apply gutta-percha or any of its compounds in a warm and soft or plastic state, and either in sheets or in any other convenient form to the pattern, and manip-
205 ulate or press the gutta-percha or its compounds into, upon, or against all the parts of the pattern, so that the intended mould, form, or shape may be capable of producing an article in all respects of the same form, shape, or configuration as the pattern. And when a mould, form, or shape is intended to produce an article having a surface covered with figures or projections, as, for instance, the forms of types, wood-cuts, printers' blocks, &c., to be used in printing, I place the pattern in a shallow box or frame, clamped together, of the size of the pattern, and put a sufficient thickness of gutta-percha or of gutta-percha compound into or upon the pattern. I then apply pressure by means of a screw-press or other power, whereby I obtain a perfect impression of all the parts. If the intended mould, form, or shape is to be made by means of gutta-percha or any of its compounds in a state of solution, the pattern must have several coats of the solution spread equally over it, each coat being effectually dried before a succeeding coat of solution is put on, and such a number of coats of solution must be laid on as will produce a solid covering of the desired thickness. Whether a mould, form, or shape of gutta-percha or any of its compounds is made so far by the one or other of the aforesaid modes, it must, if necessary, be strengthened, and that may be done by having

a thick coat of gutta-percha or some of its compounds in a plastic state, or in a state of thick solution, spread all over it, (which ought, if necessary, to be repeated,) so as firmly to adhere thereto, and make the mould, form, or shape sufficiently firm and strong for the use to which it is to be applied. And if the gutta-percha or any of its compounds is used in a plastic state, for the purpose of strengthening a mould, form, or shape, after it has become cold and rigid, a small quantity of it in a state of solution may first be applied to the outside of the mould, form, or shape, so as to make the plastic gutta-percha or its compound adhere thereto.

A mould, form, or shape may, however, be strenghtened by any other convenient means. The mould, form, or shape having thus been
206 made according to the pattern, it is when cold and dry to be taken off the pattern, (either destroying the pattern or otherwise,) and, if necessary, parted or cut into several pieces, in the way which is commonly used by persons using moulds for casting. If, however, it is necessary that a mould, form, or shape should be in several pieces, it will generally be found better to make it in several pieces, by covering only one part of the pattern at a time, in a manner before described, so as to make only so much of the required mould, form, or shape at one time as shall be intended to be in one piece, and then to allow such piece to become cool and rigid before the next adjoining piece of the mould, form, or shape is made, by which means the several pieces thereof will be prevented from adhering to each other; and each piece of the mould, form, or shape having been completed, by covering the pattern in this manner, the whole of the pieces may with ease be detached from the pattern and from each other.

A mould, form, or shape made as above described will, if carefully made, possess an accurate impression of the pattern from which it has been taken, and will be found a useful mould, form, or shape for the manufacturing of articles to be made of gutta-percha or any of its compounds, or of other materials capable of being moulded at a low temperature.

Moulds, forms, or shapes for the manufacturing of articles of gutta-percha or any of its compounds may, however, also be made of any p[illegible] fit material, such as metal, glass, wood, or earthenware.

The great advantage of using gutta-percha or any of its compounds in the making of moulds, forms, or shapes, consists in the cheapness and facility with which such moulds, forms, or shapes may be made from intricate patterns, and the correct impressions which such moulds, forms, or shapes take from the patterns, and communicate to articles produced therein. But there is in some cases this disadvantage attending the use of such moulds, forms, or shapes in the manufacture of articles to be made of gutta-percha or any of its compounds,
207 that such moulds, forms, or shapes cannot be heated or kept in a hot state while they are being used, for in such a state they would become plastic, and would lose their proper shape, or adhere to the material to be manufactured. It is therefore desirable, whenever a mould, form, or shape, made of metal or any material that can be heated or kept hot whilst in use, will not be too expensive, that the mould, form, or shape should be formed of such material. In using moulds, forms, or shapes made of such material in the manufacture of articles to be made of gutta-percha or any of its compounds in a plastic state, as hereinafter described, it will be found in some cases that the process will be very much facilitated by heating the mould, form, or

shape to a temperature somewhat less than that of boiling water, and keeping it as nearly as conveniently may be at that temperature, and the plastic material ought also in every case to be kept as nearly as may be of that temperature, until the process is completed, after which the article in the mould, form, or shape must be put aside to cool, so that the manufactured article may set or become cool and rigid.

Moulds, forms, or shapes made of gutta-percha or of any of its compounds in manner hereinbefore described, are not only applicable in the manufacture of articles of gutta-percha or any of its compounds, but also in the manufacture of porcelain, earthenware, papier maché, and other articles.

In using moulds of gutta-percha or any of its compounds, black-lead or French chalk may be used as a facing, to secure a perfect delivery from the mould in the ordinary way. In order to make articles of gutta-percha or any of its compounds, by means of moulds, forms, or shapes, any of the modes I am now about to describe may be adopted.

Thus, if any article is to be made of gutta-percha or any of its compounds, and is intended to be made solid in a close mould, it may be made as follows:

208 The mould, form, or shape ought to have an in-gate, through which the material is to be introduced, and also small out-gates or air-holes for letting the air out of the mould, form, or shape in the usual way. The mould, form, or shape, being made sufficiently strong by a jacket or other sufficient means, the gutta-percha, or other material of which the article is to be formed, being in a warm and soft, or plastic state, and being placed in a cylinder or any other convenient vessel connected with the in-gate, is to be forced out of such vessel through the in-gate into the mould, form, or shape by a screw acting against a plunger, or any other convenient means. I have found that it is better that the pressure upon the material should not be withdrawn until the contents of the mould, form, or shape have become cold and firm or rigid, after which the article may be taken out of the mould, form, or shape, and finished by the removal of accidental excrescences, (if any,) as may be necessary. Some articles intended to be made solid may be made in moulds, dies, forms, or shapes which open in two or more parts, by introducing the requisite quantity of plastic gutta-percha or any of its compounds in one or more pieces into the interior of or between the parts of the moulds, dies, forms, or shapes together, in such a manner as to impress the material with the intended form or pattern. It will generally be found advisable to introduce a very small surplus of material into the mould, die, form, or shape, and by this means the perfection of the form or pattern to be impressed upon the material will be more effectually secured, and the surplus of the material will be pressed out at the joints of the mould, die, form, or shape. In many cases in which pieces of gutta-percha may be introduced or placed into or upon moulds, dies, forms, or shapes of nearly the size and shape which they are intended to assume, such pieces may be impressed with the desired shape and figures, patterns, or ornaments by heating the moulds, dies, forms, or shapes into or upon which they are to be introduced or placed, and after introducing such pieces in a cold state, pressing the same in the moulds, forms, or shapes so as to produce the

209 desired effect. By adopting this process, the body of a piece of gutta-percha will be kept cold, or nearly so, and the surface thereof only will be made soft by contact with the heated mould, die, form, or shape into or upon which it has been placed.

Many of the compounds of gutta-percha may be treated in the man-

ner just described, but the smaller the quantity, if gutta-percha, in the compound, the less effective will the operation be.

If a hollow cast is intended to be made, or an article made with a hollow or vacant space in the interior thereof, (in an open mould,) such, for instance, as a bust, the interior of the mould, form, or shape may be covered with gutta-percha or any of its compounds in a warm and soft, or plastic state, the material being carefully pressed by the hand or any other convenient means into every part of the mould, form, or shape. The perfection of the article to be made will be more effectually secure by forcing hot sand, hot water, or hot air into the interior of the article, and by adopting these or any similar means the material may be forced into every part of the mould, shape, or form, and made to assume the form, shape, or figure which is intended. Hollow articles to be made of gutta-percha or any of its compounds may also be made as follows:

I take a strong mould, form, or shape capable of being made air-tight, and made of metal or any other fit material. This mould must have an in-gate and an out-gate, each provided with a stop-cock; the tube of the stop-cock fitted to the in-gate must proceed a short distance within the mould, and the mould ought to be furnished with strong clamps for clamping it together. The piece of gutta-percha, or any of its compounds which is intended to be manufactured must be made into a shape as nearly resembling that of the intended article as conveniently may be, but considerably smaller, and having a space in the interior thereof; or the interior thereof be so constructed that the same may, by air blown into the interior thereof, be pressed into every part of the mould, form, or shape. The piece of gutta-percha or any of its com-
210 pounds is then to be connected with the tube of the stop-cock fitted to the in-gate, and so that the air through the in-gate may be forced into the interior of the piece of gutta-percha or any of its compounds without communicating with the space between such piece and the mould, form, or shape. A piece of gutta-percha or any of its compounds in a soft and plastic state, being introduced into the mould in the way already described, and the mould having been strongly clamped together and made air-tight, (the stop-cock of the in-gate being closed,) the stop-cock of the out-gate is to be opened and made to communicate with an air-pump; the air is then to be exhausted out of the mould, form, or shape by the air-pump, after which the stop-cock of the out-gate must be closed, and that of the in-gate opened. The pressure of the air proceeding through the in-gate into the interior of the piece of gutta-percha, or such other material as aforesaid, will in some cases be sufficient to force the material into every part of the mould, and complete the impression of which it is intended to receive; but in those cases where such a pressure shall be found to be insufficient, the impression may be made complete by connecting the tube or in-gate with a force-pump, and by such a pump (or any other convenient means) forcing hot air or water into the interior of the piece of material to be manufactured, which may thus be effectually impressed with the form or pattern which the mould, form, or shape is capable of impressing upon it. In case an article is intended to be made in an open mould or shape, with a surface having figures in relief or intaglio thereon, I take the mould or shape and place in or upon it a sheet or piece of plastic gutta-percha or of any of its compounds of a size or shape as nearly resembling the shape of the intended article as conveniently may be. I then press a piece of gutta-percha or of its compounds into, upon, or against the mould or shape by a screw-press, or any other convenient means of applying the pressure, so as to force the soft material into every part of

the mould or shape, and under pressure until cold and rigid. If it
211 is intended to use a mould in two parts, as an inside and an outside mould or shape, for the purpose of producing an article of manufacture, I place the gutta-percha or gutta-percha compound in the hollow or interior of the outside mould or shape, of a size and figure as nearly resembling that of the intended article as conveniently may be, and then I insert the inside mould, shape, or core within the other mould, and within, upon, or against the material placed therein, and press the moulds together by a screw-press, or any other convenient means, so as to force the material into every part of the mould or shape, after which the article must be suffered to remain in the mould or shape and under pressure until it becomes cool and stiff or rigid. The inside mould or core may, when desired, be made in several pieces, and gutta-percha or any of its compounds may be introduced between the several pieces of the core, so as to make divisions or partings in the interior of the article to be produced.

In forming articles of gutta-percha by joining sheets or pieces of gutta-percha together, I have found that pieces of gutta-percha in a cold state cannot be permanently united together in the same way as cold pieces of caoutchouc are usually joined; but if the edges or parts of gutta-percha which are intended to be joined together are softened or made plastic by the application of heat, then they may by pressure be effectually and permanently united together. The heat necessary for rendering the edges or parts of gutta-percha soft or plastic may be applied by means of a current of hot air, heated iron, or by any other means which may be found most convenient; care ought, however, to be taken that the parts to be joined are not moistened with water or greased, because such moisture or any kind of grease will have the effect of preventing the effectual adhesion of the parts. By adopting this mode of joining the edges or pieces of gutta-percha together in the manufacture of articles, such as are usually made of leather, it becomes unnecessary to sew or stitch such parts together, the parts being more effectually joined by the mode hereinbefore described. Pieces of
212 the compounds of gutta-percha may also be joined together in a similar manner, with more or less effect, according to the greater or less quantity of gutta-percha, of which the compound has been formed. I have also found that sheets or pieces of gutta-percha or any of its compounds may be joined together when in a cold state by first covering the parts to be joined together with a solvent or solution of the gutta-percha or any of its compounds as a cement, and then bringing the parts together which are to be joined, and keeping them in that state until they are effectually united, which will be generally effected after two or three hours, but much more quickly if bi-sulphuret of carbon should happen to be the solvent used. This mode of joining pieces of gutta-percha or any of its compounds is not so effective as that before described, but may be useful in some cases in which the other mode cannot with facility be adopted. Either one or the other mode of uniting pieces of gutta-percha or any of its compounds may be adopted for joining together pieces of any article which may have been separately formed in moulds, forms, or shapes, so as to complete the manufacture of the intended article.

Articles may also be made of gutta-percha or any of its compounds, and of some other fit and proper material, for the production of the intended article. Thus a metallic chain or other weight may be introduced into the interior of any piece or pieces of gutta-percha, or of any of its compounds, which is about to be manufactured in any mould or

shap[illegible], also, if a wooden or other handle is intended to be introduc[illegible]nto any article, the gutta-percha or any of its compounds, of wh[illegible] the other part or parts of the article is or are intended to be used, m[illegible]be moulded upon one end or some other part of the intended [illegible]dle, by means of a mould, form, or shape, or any other convenient [illegible]ans; and when it is desirable that handles, knobs, screws, hinges, and other furniture and things should be imbedded in any article made of gutta-percha or any of its compounds, in any mould, form, or

213 shape, such, for example, as doors, framings, pannels, or other parts of the bodies of railway or other carriages, and many other articles, such as handles, knobs, screws, hinges, furniture, and things, should have the parts thereof, which are to be so imbedded as aforesaid, introduced into the mould, form, or shape in such a manner that the same shall, during the manufacture of such article, be effectually and firmly embedded in the material of which it is made. When a piece of wood or other material is intended to be introduced into an article to be partly formed of gutta-percha or any of its compounds, in a shape which would easily draw out of that part of the article which is formed of the gutta-percha or any of its compounds, that part of the material which is intended to be introduced into the gutta-percha or its compounds, should be made with projections upon it, or holes in or through it, so that it may be securely and firmly held by the gutta-percha or its compounds. Articles may also be made of gutta-percha or any of its compounds, formed upon skeleton or other shapes, forms, or foundations made of iron, wood, or any other material, such as saddle-trees, skeleton-forms, axles, or shafts of rollers, &c. The skeleton-form or shape of a saddle-tree may be made of perforated iron or other metal, and the plastic gutta-percha or any of its compounds may be moulded upon it into the shape of the intended saddle-tree, care being taken that the plastic material is pressed through the perforations of the skeleton-form or shape, so as to unite and bind together the material which is upon each side of the skeleton-form or shape. The same mode of manufacturing may be adopted in the production of numerous other articles, and in making some of them, a skeleton-form or shape of iron or other metal, wire, gauze, or cloth, or any perforated pieces of metal, or other suitable substances may be used. Thus also skeletons, or other forms, shapes, or foundations for hats, bonnets, or linings may be covered with gutta-percha, or any of its compounds in manner aforesaid, and so made into a hat, bonnet, or lining.

Skeleton-forms, shapes, or foundations, may also be covered or

214 saturated with gutta-percha, or any of its compounds, by saturating or coating such forms, shapes, or foundations with the gutta-percha, or compounds of gutta-percha in a state of solution, and when dry repeating the process, if desired. A roller may be made with the surface of the gutta-percha or any of its compounds by taking a roller of iron, wood, or other material, turned somewhat less in diameter than the intended roller, according to the intended thickness of the gutta-percha or its compounds. Upon this roller of iron, wood, or other material, (leaving small orifices or holes in the surface of it, into which parts of the soft material may be pressed to keep the whole firmly in its place,) must be placed a sheet of plastic gutta-percha or any of its compounds, (according to quality which the material of the surface is required to possess,) so as to surround and cover the roller equally in every part, and the edges of the sheet must be pressed together whilst soft so as to adhere together, and in manner hereinbefore described; and gutta-percha or any of its compounds may be put upon

the mould or shape, and under pressure until cold and rigid. If it
211 is intended to use a mould in two parts, as an inside and an outside mould or shape, for the purpose of producing an article of manufacture, I place the gutta-percha or gutta-percha compound in the hollow or interior of the outside mould or shape, of a size and figure as nearly resembling that of the intended article as conveniently may be, and then I insert the inside mould, shape, or core within the other mould, and within, upon, or against the material placed therein, and press the moulds together by a screw-press, or any other convenient means, so as to force the material into every part of the mould or shape, after which the article must be suffered to remain in the mould or shape and under pressure until it becomes cool and stiff or rigid. The inside mould or core may, when desired, be made in several pieces, and gutta-percha or any of its compounds may be introduced between the several pieces of the core, so as to make divisions or partings in the interior of the article to be produced.

In forming articles of gutta-percha by joining sheets or pieces of gutta-percha together, I have found that pieces of gutta-percha in a cold state cannot be permanently united together in the same way as cold pieces of caoutchouc are usually joined; but if the edges or parts of gutta-percha which are intended to be joined together are softened or made plastic by the application of heat, then they may by pressure be effectually and permanently united together. The heat necessary for rendering the edges or parts of gutta-percha soft or plastic may be applied by means of a current of hot air, heated iron, or by any other means which may be found most convenient; care ought, however, to be taken that the parts to be joined are not moistened with water or greased, because such moisture or any kind of grease will have the effect of preventing the effectual adhesion of the parts. By adopting this mode of joining the edges or pieces of gutta-percha together in the manufacture of articles, such as are usually made of leather, it becomes unnecessary to sew or stitch such parts together, the parts being more effectually joined by the mode hereinbefore described. Pieces of
212 the compounds of gutta-percha may also be joined together in a similar manner, with more or less effect, according to the greater or less quantity of gutta-percha, of which the compound has been formed. I have also found that sheets or pieces of gutta-percha or any of its compounds may be joined together when in a cold state by first covering the parts to be joined together with a solvent or solution of the gutta-percha or any of its compounds as a cement, and then bringing the parts together which are to be joined, and keeping them in that state until they are effectually united, which will be generally effected after two or three hours, but much more quickly if bi-sulphuret of carbon should happen to be the solvent used. This mode of joining pieces of gutta-percha or any of its compounds is not so effective as that before described, but may be useful in some cases in which the other mode cannot with facility be adopted. Either one or the other mode of uniting pieces of gutta-percha or any of its compounds may be adopted for joining together pieces of any article which may have been separately formed in moulds, forms, or shapes, so as to complete the manufacture of the intended article.

Articles may also be made of gutta-percha or any of its compounds, and of some other fit and proper material, for the production of the intended article. Thus a metallic chain or other weight may be introduced into the interior of any piece or pieces of gutta-percha, or of any of its compounds, which is about to be manufactured in any mould or

shape; so, also, if a wooden or other handle is intended to be introduced into any article, the gutta-percha or any of its compounds, of which the other part or parts of the article is or are intended to be used, may be moulded upon one end or some other part of the intended handle, by means of a mould, form, or shape, or any other convenient means; and when it is desirable that handles, knobs, screws, hinges, and other furniture and things should be imbedded in any article made of gutta-percha or any of its compounds, in any mould, form, or
213 shape, such, for example, as doors, framings, pannels, or other parts of the bodies of railway or other carriages, and many other articles, such as handles, knobs, screws, hinges, furniture, and things, should have the parts thereof, which are to be so imbedded as aforesaid, introduced into the mould, form, or shape in such a manner that the same shall, during the manufacture of such article, be effectually and firmly embedded in the material of which it is made. When a piece of wood or other material is intended to be introduced into an article to be partly formed of gutta-percha or any of its compounds, in a shape which would easily draw out of that part of the article which is formed of the gutta-percha or any of its compounds, that part of the material which is intended to be introduced into the gutta-percha or its compounds, should be made with projections upon it, or holes in or through it, so that it may be securely and firmly held by the gutta-percha or its compounds. Articles may also be made of gutta-percha or any of its compounds, formed upon skeleton or other shapes, forms, or foundations made of iron, wood, or any other material, such as saddle-trees, skeleton-forms, axles, or shafts of rollers, &c. The skeleton-form or shape of a saddle-tree may be made of perforated iron or other metal, and the plastic gutta-percha or any of its compounds may be moulded upon it into the shape of the intended saddle-tree, care being taken that the plastic material is pressed through the perforations of the skeleton-form or shape, so as to unite and bind together the material which is upon each side of the skeleton-form or shape. The same mode of manufacturing may be adopted in the production of numerous other articles, and in making some of them, a skeleton-form or shape of iron or other metal, wire, gauze, or cloth, or any perforated pieces of metal, or other suitable substances may be used. Thus also skeletons, or other forms, shapes, or foundations for hats, bonnets, or linings may be covered with gutta-percha, or any of its compounds in manner aforesaid, and so made into a hat, bonnet, or lining.

Skeleton-forms, shapes, or foundations, may also be covered or
214 saturated with gutta-percha, or any of its compounds, by saturating or coating such forms, shapes, or foundations with the gutta-percha, or compounds of gutta-percha in a state of solution, and when dry repeating the process, if desired. A roller may be made with the surface of the gutta-percha or any of its compounds by taking a roller of iron, wood, or other material, turned somewhat less in diameter than the intended roller, according to the intended thickness of the gutta-percha or its compounds. Upon this roller of iron, wood, or other material, (leaving small orifices or holes in the surface of it, into which parts of the soft material may be pressed to keep the whole firmly in its place,) must be placed a sheet of plastic gutta-percha or any of its compounds, (according to quality which the material of the surface is required to possess,) so as to surround and cover the roller equally in every part, and the edges of the sheet must be pressed together whilst soft so as to adhere together, and in manner hereinbefore described; and gutta-percha or any of its compounds may be put upon

the surface of a roller in a mould, form, or shape, so as hereinbefore described.

* * * * * * *

Having now described the nature of my said invention and in what manner the same is to be performed, I declare that the following are the several improvements which I claim as constituting the same.

* * * * * * *

Secondly. The giving of shape and configuration to articles to be made of gutta-percha or any of its compounds, by casting, moulding, pressing, stamping, and otherwise, as secondly hereinbefore described.

* * * * * * *

In witness whereof I, the said Charles Hancock, have hereunto set my hand and seal, this fourteenth day of November, one thousand eight hundred and forty-six.

CHARLES HANCOCK. [L. S.]

215 And be it remembered that, on the fourteenth day of November, in the year of our Lord 1846, the aforesaid Charles Hancock came before our said lady, the Queen, in her chancery, and acknowledged the specification aforesaid, and all and everything therein contained in form above written. And also the specification aforesaid was stamped according to the tenor of the statute made for that purpose.

Inrolled the fourteenth day of November, in the year of our Lord one thousand eight hundred and forty-six.

RICHARDS.

216 *Defendant's Exhibit "F."*

Extracts from Patent Office Reports for 1847, pages 23, &c.

Dr. Montgomerie suggests among the less immediately obvious uses to which gutta-percha is applicable, that of making raised type for the blind, and embossed maps for the same unfortunate beings; it takes a clear, sharp impression, and is also tough and durable. He thinks it would likewise be found serviceable in stopping decayed teeth.

* * * * * * *

Mr. Hancock would combine gutta-percha with caoutchouc, and a substance called gintawan, (we have no clue to what this gintawan may be,) in order to form an elastic material impervious to water. Varying the proportions according to the greater or less degree of hardness or elasticity required, for making elastic bands, a compound, is used where 50 parts of gutta-percha are combined with 24 of gintawan, 20 of caoutchouc, and 6 of orpiment. From a mixture of these, Mr. Hancock also prepares a light, porous, and spongy material suited for stuffing or forming the seats of chairs, cushions, mattresses, saddles, &c., likewise springs of clocks, clasps, belts, garters, and strings. Wherever the requisite is flexibility and elasticity, then the quantity of gutta-percha should be diminished, and increased where firmness is wanted. By prolonging the process much hardness may be acquired, and moulds and balls of gutta-percha will bear turning in the lathe, like wood or ivory. The material is also applicable to useful and ornamental purposes, as picture-frames, door-handles, walking-sticks, chessmen, handles of swords and knives, buttons, combs, flutes, &c., &c. By the admixture of sulphuric acid, or of a tenth or larger part of vegetable wax or tallow, any degree of solubility, pliancy, and softness may be acquired; or the composition may be used as a varnish

217

to cover other materials, concealing any odor, and imparting a surface impervious to water.

* * * * * * *

Numerous are the purposes to which Mr. Hancock proposes applying the gutta-percha, but the above named will suffice for our readers.

218 *Defendant's Exhibit "G."*

Extract from compte rendu de séances de l'academie, August 4th, 1851, page 126.

Mo. De la Barre, fils sonnet au jugement de l'acadèmie un mèmoire sur l'emploi de la gutta-percha dans la fabrication des dentures artificielles.

"Dans les dentures artificielles, la partie qui représent l'arcade alvèolaise se peut faire de substances trés diverses mais dont aucune n'est exempte d'inconvènients. Si l'on a recours au mètal tout l'appareil est pesant, et ce n'est qu'aprés beaucoup de tâtonnements qu'on peut lui donner une forme qui s'accommode bien aux irrègularitès du bord gengival de maniére á exercer partout une ègale pression. Si l'on emploie des pâtes plus, ou a moins analogues a la pâte de porcelaine, ou a moins de difficultè il est vrai sous le raport du modelè des surfaces destinès á être mises en contact avec les gencives; mais il reste l'inconvènient du poiu auquel peut s'ajouter celui du volume puis qu'avec des parties trés minces l'appareil manquerait de la soliditè nècessaire. A l'on recours á des substances emprentèes au regne animal, telles que livorie, les dents d'hippopotame, les dèfenses de morse on peut avoir des appareils lègers sans étre fragile; mais le traveil du modelè reste toujours difficile, et ce qui est un bien plus grand inconvènient, les substances sont attaquèes par la salive ou par les liquides qui traversent la bouche; leur surface au bout de quelque temps, devient rugueuse et irrite le bord gen-
219 givale elles prennent aussi, malgrè tous les souis de propretè une odeur dèplaisante quelles communiquent á l'haline.

"La gutta-percha est exempte de ce defaut et les expèriences auxquelles on l'a soumise montieut qu'après une assez longue immersion dans les liquides plus actifs que ceux avec lesquelles elle peut se trouver moementanèment en contact dans la bouche, elle n'a èprouvè aucume alteration.

"Chauffèe au bain marie á une tempèrature des 100 degrès elles devient assez molle pour donner la contre èpreure exacte d'une soite de matrice dans laquelle on la fait entrer au moyen d'une pression convenablement exercèe cette matrice, qui s'obtient au moyen d'un double moulage au plâtre represente trés exactement le bord alvèolaire. Ou fixe dans l'arcade ainsi prèparèe et au moyen de crampons mètalliques appliqès á chaud soit des dents naturelles, soit des dents en pâte.

"Ajoutons que la gutta-percha avant d'être moulé et pendant qu'elle est dans l'ètat de molesse a ete coloree de maniére á imiter la teinte des gencives et que cette couleur est durable."

La memoire de M. De la Barre est renvoye á l'examen d'une commission composè de Ms. Roux Velpeau et Lallemand.

TRANSLATION.

Mr. De la Barre filed, subject to the judgment of the academy, an article on the employment of gutta-percha in the fabrication of artificial teeth.

In artificial teeth the part that forms the gum-socket can be made of very different substances, but none of which is exempt from inconveniences. If you have recourse to metal all the apparatus is heavy and it is only after much trouble that you can give it a form which will thoroughly accommodate itself to the irregularities of the edges of the gum, in such manner as to press equally on every part.

220 If you employ compositions more or less analogous to the porcelain you have less difficul'y, it is true, in modelling the surfaces intended to come in contact with the gums but the inconvenience of weight and size remains, and in the very small part the apparatus lacks the necessary solidity.

If you have recourse to the substances made from the animal kingdom such as ivory, teeth of hippopotamus, the tusks of the morse, the plate is light, without being fragile but the work of modelling still remains difficult and a much greater inconvenience, the substances are affected by the saliva or by liquids which pass through the mouth, their surface in time becomes rough and irritate' the gum, and in spite of all care taken, they have an unpleasant odor which they communicate to the breath.

Gutta-percha is exempt from this fault, and the experiment' to which it has been subjected show that after a long enough immersion in liquids more active than those with which it would be momentarily brought in contact in the mouth it experiences no alteration.

Heated in a sand bath to a temperature of 100 degrees it becomes soft enough to take an exact proof of the mould, in which they put it, by means of a suitable pressure exercised; this mould, which is obtained by a double mould of plate, represents very exactly the gum socket. They fix in the arch, thus prepared, by means of metallic pins applied hot, either natural teeth or teeth of paste. Let us add that gutta-percha, before being moulded and while in a melted state, is colored in a manner to imitate the tint of the gums and that this color is durable.

The memoir of Mr. De la Barre is sent for examination to a commission composed by Messrs. Roux Velpeau and Lallemand.

221 *Defendant's Exhibit "H."*

Extract from the official report of the exhibition of 1851, at London England. (Volume 1, page 474, in class X, No. 720.)

E. Truman, inventor, 40 A Haymarket, "patent artificial teeth with gutta-percha gums." Set of mineral teeth mounted on gutta-percha.

222 *Defendant's Exhibit "I."*

Extract from the official reports of the juries of the international exposition, 1851, page 598, article XXVIII; uses of gutta-percha.

The exhibitor has succeeded in combining gutta-percha with sulphur and the metallic sulphurets. * * * * *
It is as hard as ivory, and can be used for the same purposes to which wood and ivory are generally applied. * * * *
* * * Quite recently, by the exertions of Mr. Truman, a lump of colored gutta-percha, moulded into the form of a jawbone has been found capable of holding together artificial teeth, and thus advantageously superseding those settings in gold which were so costly and the absolute rigidity of which, moreover, presented much inconvenience, the slight

but sensible elasticity possessed by gutta-percha, renders it, on the contrary, very well adapted to this use.

223 *Defendant's Exhibit "K."*

American Journal of Dental Science, new series, vol. II, page 332, in the January (1852) number.

We have received a communication from Robert Parsons, surgeon dentist, of York, England, informing us that a Mr. Turner has obtained a patent for "fixing artificial teeth upon a preparation of gutta-percha." He also states that he has in his possession a set, the entire base of which is composed of the same material which has been worn for some time and made by his brother, Mr. J. P. Parsons, dentist, of Halifax, who had made others during his residence in Liverpool. He does not, however, regard this material as suitable for the purpose, and says: "It can never supercede well-adapted gold plates and carefully-prepared sea-horse ivory foundations.

Some six or eight months previous to the receipt of the communication here referred to, we received a letter from a gentleman residing in New England, who informed us that he had succeeded in making a preparation of gutta-percha, which he had used as a base for artificial teeth. He also informed us that in the cases in which he had used it, it had fully realized his most sanguine expectations, promising that after he had tested it sufficiently and that if it should prove to be really valuable for this purpose, to make the discovery known to the profession. He moreover sent us a small piece of the preparation, and we believe he is still engaged in trying to improve it. We hope he will soon give us an opportunity of laying the results of his experiments before the profession.

224 *Defendant's Exhibit "L."*

Extract from Harris' Dictionary of Medicine and Dental Surgery, article "Caoutchouc and gutta-percha."

"It has also been used for a temporary filling for teeth and as a basis for artificial teeth.

225 *Defendant's Exhibit "M."*

No. 70250.

The United States of America to all to whom these letters-patent shall come:

Whereas J. B. Newbrough and E. Fagan, of New York, N. Y., have alleged that they have invented a new and useful improved mode of treating caoutchouc, gutta-percha, and similar gums, and have made oath that they are citizens of the United States; that they verily believe they are the original and first inventors or discoverers of the said invention, and that the same hath not, to their knowledge and belief, been previously known or used; have paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents, praying that a patent may be issued therefor:

These are, therefore, to grant to the said Newbrough and Fagan, their executors, administrators, or assigns, for the term of seventeen years

from the twenty-ninth day of October, one thousand eight hundred and sixty-seven, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention, a description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office to be hereunto affixed. Given under my hand at the city of Washington, this twenty-ninth day of October, in the year of our Lord one thousand eight hundred and sixty-seven, and of the independence of the United States of America the ninety-second.

[L. S.]

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

T. C. THEAKER,
Commissioner of Patents.

226 UNITED STATES PATENT OFFICE.

J. B. Newbrough & Edward Fagan, of New York, N. Y. Letters-patent No. 70250, dated October 29, 1867. Improved mode of treating caoutchouc, gutta-percha, and similar gums.

The schedule referred to in these letters patent, and making part of the same.

To all whom it may concern:

Be it known that we, J. B. Newbrough and E. Fagan, of New York City, have invented a new composition of matter; and we do hereby declare the following to be a full, clear, and exact description of the same:

Caoutchouc, gutta-percha, Brazilian gum, copal, shellac, amber, or any similar gum, is rolled or worked in any manner whereby it may be formed into sheets. These are then placed one above another, with layers of powdered iodine between them, and the pack is worked between heated rolls, under pressure, until the iodine is thoroughly incorporated with the gum. The composition is then moulded, cut, or otherwise reduced to any desired form, and is baked for about thirty minutes, (dry heat being preferable,) at a temperature of from about 230° to 330° Fahrenheit, when a substance possessing properties distinct from those of the gum employed, and which is available for many useful and ornamental purposes, is produced.

227 Either an elastic, semi-elastic, or inflexible substance may be produced by combining the gum and iodine in different proportions. For instance, to make a semi-elastic substance, sixteen ounces of gutta-percha (or eight ounces of caoutchouc) should be combined with two ounces of iodine; and a solid or nearly unelastic substance may be formed by the combination of eighteen ounces of gutta-percha (or nine ounces of caoutchouc) and four ounces of iodine. Different colors may be imparted to the composition by the admixture of vermilion or other suitable material, and by immersing the articles in liquid ammonia any unpleasant odor may be removed.

Although we have specified certain proportions in which the ingredients may be combined, these proportions may be varied, as required, to produce any desired result. The gum and iodine may be mixed in a

different manner. For instance, the gum may be kneaded or rolled in the presence of the vapor of iodine, with which it will thus become impregnated. The amount of heat applied to the composition may be varied to vary the character of the substance produced, and steam (superheated if necessary) may be employed for baking the composition, or the latter may be heated in oil or other material. To produce a cheaper substance, earthy, mineral, or other matters may be mixed with the composition.

We claim as our invention, and desire to secure by letters-patent, as a new composition—

Gutta-percha or other gums, combined with or treated in connection with iodine, in the manner described or in any other manner by which the within-described result is obtained.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

J. B. NEWBROUGH.
E. FAGAN.

Witnesses:
CHARLES E. FOSTER.
C. P. HARTT.

228*a* *Stipulation No. 4.*

Circuit court of the United States, district of Rhode Island.

THE GOODYEAR DENTAL VULCANITE CO.
vs.
BENONI E. GARDNER.

It is hereby stipulated that defendant's exhibits N, O, & P, paged 205 to 213, inclusive, and to be paged in the record herein as pages No. 229*a*, 229*b*, 229*c*, 229*d*, 229*e*, 229*f*, 229*g*, 229*h*, & 229*i*, shall be filed as part of the record herein with the clerk of this court, the same having been omitted by inadvertence, although used in the trial thereof.

Dated November 25, 1870.

CAUSTEN BROWNE,
Sol'r for Compl'ts.
JOHN A. FOSTER,
Sol'r for Def't.

Filed 6th December, 1870.—D. W. M.

229*a* *Defendant's Exhibit "N."*

No. 73545.

The United States of America to all to whom these letters patent shall come:

Whereas J. B. Newbrough and E. Fagan, of New York, N. Y., have alleged that they have invented a new and useful improvement in treating caoutchouc, and other gums, and have made oath that they are citizens of the United States; that they verily believe that they are the original and first inventors or discoverers of the said improvement, and that the same hath not, to their knowledge and belief, been previously known or used; have paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents, praying that a patent may be issued therefor:

These are therefore, to grant to the said Newbrough and Fagan, their executors, administrators, or assigns, for the term of seventeen years from the twenty-first day of January one thousand eight hundred and sixty-eight the full and exclusive right and liberty of making, using, and vending to others to be used, the said improvement, a description whereof is given in the annexed schedule, and made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office to be hereunto affixed. Given under my hand at the city of Washington, this twenty-first day of January, in the year of our Lord one thousand eight hundred and sixty-eight, and of the independence of the United States of America the ninety-second.

{ SEAL OF THE PATENT OFFICE. }

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

A. M. STOUT,
Acting Commissioner of Patents.

229*b* UNITED STATES PATENT OFFICE.

J. B. Newbrough & Edward Fagan, of New York, N. Y. Letters-patent No. 73545, dated January 21, 1868. Improvement in treating caoutchouc and other gums.

The schedule referred to in these letters-patent, and making part of the same.

To all whom it may concern:

Be it known that we, J. B. Newbrough and E. Fagan, of New York City, have invented a new substance or ma- *or ma*terial; and we do hereby declare the following to be a full, clear, and exact description of the manner in which the same is produced:

By adding to iodine one-half its weight of bromine, protobromide of iodine is formed, and this, when combined with rubber, or equivalent gum, will produce a composition which will harden on being subjected for about an hour to a heat of 250° Fahrenheit. Owing to the volatile properties of protrobromide of iodine, it cannot be applied without difficulty to practical purposes. To obviate this difficulty we treat both the bromine and iodine, prior to combining the same, with oil of turpentine, or similar oil, which has previously been mixed with about one-fourth its weight of 'ulphuric acid, to prevent the formation of an explosive composition.

229*c* The pasty mixture, produced as above described, is combined with caoutchouc, or equivalent gum, in the proportion of about three ounces of the paste to a pound of gum, the proportion of gum being increased if a more elastic product is desired. After the gum and paste are thoroughly incorporated, the composition may be hardened by subjecting it to a dry heat of from 200° to 320° Fahrenheit for from ten minutes to one hour and a half, the time being lengthened to increase the toughness of the product.

The product thus obtained may be applied to many useful and ornamental purposes, and any desired color may be imparted to the material by combining with the composition, before it is hardened, any suitable mineral or earthy coloring-matters.

We claim as our invention, and desire to secure by letters-patent—

The within-described new manufacture or substance, consisting of caoutchouc, or equivalent gum, incorporated with iodine and bromine (after treating the said iodine and *and* bromine with turpentine, or equivalent oil, substantially as described,) and subjected to heat.

In testimony whereof we have hereunto signed our names to this specification in the presence of two subscribing witnesses.

J. B. NEWBROUGH.
E. FAGAN.

Witnesses:
CHARLES E. FOSTER.
C. P. HARTT.

229*d* *Defendant's Exhibit "O."*

No. 73916.

The United States of America to all to whom these letters-patent shall come:

Whereas J. B. Newbrough and E. Fagan, of New York, N. Y., have alleged that they have invented a new and useful improvement in the manufacture of articles of rubber, gutta-percha, etc., and have made oath that they are citizens of the United States; that they verily believe they are the original and first inventors or discoverers of the said improvement, and that the same hath not, to their knowledge and belief, been previously known or used; have paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents, praying that a patent may be issued therefor:

These are, therefore, to grant to the said Newbrough and Fagan, their executors, administrators, or assigns, for the term of seventeen years, from the twenty-eighth day of January, one thousand eight hundred and sixty-eight, the full and exclusive right and liberty of making, using, and vending to others to be used, the said improvement, a description whereof is given in the annexed schedule, and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

Given under my hand at the city of Washington this twenty-eighth day of January, in the year of our Lord one thousand eight hundred and sixty-eight, and of the independence of the United States of America the ninety-second.

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

A. M. STOUT,
Acting Commissioner of Patents.

229*e* UNITED STATES PATENT OFFICE.

J. B. Newbrough & Edward Fagan, of New York, N. Y. Letters-patent No. 73916, dated January 28, 1868. Improvement in the manufacture of articles of rubber, gutta-percha, etc.

The schedule referred to in these letters-patent, and making part of the same.

To all whom it may concern:

Be it known that we, J. B. Newbrough and E. Fagan, of New York,

have invented an improvement in the manufacture of articles of rubber, gutta-percha, and similar gums; and we do hereby declare the following to be a full, clear, and exact description of the same:

Gutta-percha, rubber, or other similar gum, after being moulded, carved, or otherwise reduced to any desired shape, is immersed in bromine, and is maintained in the same for such a length of time that, after the article is withdrawn and exposed to the air, the gum will become hardened and otherwise changed in its character, so that it can be applied to purposes for which the gum, in its natural state, could not be used.

In order to prevent the gum from hardening to any extent before it is withdrawn from the bromine, chloroform, or equivalent solvent
229*f* of the gum may be added to the bromine, in the proportion of nine parts of the latter to one of chloroform, and the article of gum is either immersed in the composition or a portion of gum is dissolved in the same, and the solution is applied in successive layers or coatings, to a mould on which an article is to be formed, or as a coating to articles of other materials which require to be covered, the gum hardening on the evaporation of the chloroform.

We claim as our invention, and desire to secure by letters-patent—

The manufacture of articles of utility or ornament, by subjecting rubber, gutta-percha, or similar gum, either before or after it is formed, of the desired shape, to the action of bromine, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

J. B. NEWBROUGH.
E. FAGAN.

Witnesses:
CHARLES E. FOSTER.
C. P. HARTT.

229*g* *Defendant's Exhibit "P."*

No. 73917.

The United States of America to all to whom these letters-patent shall come:

Whereas J. B. Newbrough and E. Fagan, of New York, N. Y., have alleged that they have invented a new and useful improved material, produced by treating caoutchouc and other gums, and have made oath that they are citizens of the United States; that they verily believe they are the original and first inventors or discoverers of the said invention, and that the same hath not, to their knowledge and belief, been previously known or used; have paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents, praying that a patent may be issued therefor:

These are therefore to grant to the said Newbrough and Fagan, their executors, administrators, or assigns, for the term of seventeen years, from the twenty-eighth day of January, one thousand eight hundred and sixty-eight, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention, a description whereof is given in the annexed schedule, and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

Given under my hand at the city of Washington this twenty-eighth day of January, in the year of our Lord one thousand eight hundred

and sixty-eight and of the independence of the United States of America the ninety-second.

[L. S.]

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

A. M. STOUT,
Acting Commissioner of Patents.

229*h* THE UNITED STATES PATENT OFFICE.

J. B. Newbrough & Edward Fagan, of New York, N. Y. Letters-patent No. 73917, dated January 28, 1868. Improved material produced by treating caoutchouc and other gums.

The schedule referred to in these letters-patent, and making part of the same.

To all whom it may concern:

Be it known that we, J. B. Newbrough and E. Fagan, of New York City, have invented an improved material, produced by treating caoutchouc and other gums; and we do hereby declare, the following to be a full, clear, and exact description of the manner in which the same is made:

Sulphur is treated by boiling it in turpentine or equivalent oil, a portion of which will be decomposed, and will settle with the sulphur, to the bottom of the vessel in which the materials are treated. The oil is then poured off, and the solid matter which remains is washed with dilute sulphuric acid, and is dried at a low heat.

Iodine is treated in the same manner as the sulphur, with oil, to which sulphuric acid has been added, to prevent the formation of an explosive composition.

229*i* Equal proportions of the prepared sulphur and iodine are melted together, and the composition, after cooling and hardening, is thoroughly incorporated with caoutchouc or equivalent gum, in the proportion of about three ounces of the composition to one pound of the gum.

The gum thus prepared may be moulded or otherwise formed of any desired shape, after which it is introduced into an oven, the temperature of which, during the first fifteen minutes, is raised to 320° Fahrenheit. This temperature is maintained for five minutes, and is then quickly lowered to 250°, at which it remains for about an hour, or until the composition is hard.

Any color imparted to this composition, by the mixture with the same of suitable earthy or mineral matter, will not be changed by the hardening process, so that no difficulty is experienced in obtaining a product of almost any desired color; and as but a comparatively low heat is required to harden the composition, the gum is not weakened or injured by the operation in any degree.

The product thus obtained is hard, tough, and durable, is not affected by nitro-sulphuric or other acid, and is applicable to many useful and ornamental purposes.

We claim as our invention and desire to secure by letters-patent—

The within-described new manufacture or substance, consisting of caoutchouc, or equivalent gum, incorporated with iodine and sulphur (after treating the said iodine and sulphur substantially as specified) and subjected to heat.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

J. B. NEWBROUGH.
E. FAGAN.

Witnesses:
CHARLES E. FOSTER.
CHARLES P. HARTT.

228 TESTIMONY FOR RESPONDENT.

[Admitted by stipulation No. 4.]

Deposition of Willard Ball.

Int. 1. What is your name, age, residence, and occupation?

Ans. My name is Willard Ball; my age is forty-two; my residence, Walpole, N. H.; my occupation is that of dentist.

Int. 2. How long have you been engaged in the business of dentist?

Ans. Twenty-one years.

Int. 3. State whether or not you have vulcanized or hard rubber as a base for artificial teeth, and if yea, state when and where you first so used it.

Ans. I first got my instructions here in the city, of F. A. Bevin; it was in December, 1856, or January, 1857, at 210 Washington street, at the office of I. A. Salmon. He (Bevin) was selling licenses under the Goodyear patent. I received a license from him; my first license was dated 20th day of February, 1857. I annex a copy of the license I received marked, "A, W. W., Jr$_y$" subject to the objection of the counsel of the complainant for immateriality.

Int. 4. State whether or not you received instructions from Bevin in reference to the preparation or manufacture of the rubber base spoken of in your answer to the third interrogatory, and if yea, state what the instructions were, and when you received them.

Ans. I received instructions as to the use of the hard-rubber base in February, 1857. He taught me how to use it and vulcanize it, and I received a deed here in February, 1857, and think I paid him about
229 seventy dollars for the right to vulcanize for dental purposes. He did my vulcanizing for 1857, I think. I think his heater was on Water street here a part of the time. Some time in the summer he removed it out to Cambridgeport. Mr. Bevin showed me how to make flasks out of plaster; it was made of plaster. He showed me how to put the teeth into it, and how to apply the rubber to the teeth, and then how to fasten this plaster together so as to have it close perfect, and how long to heat it, and how hot. I don't know that I can give his table, it was quite lengthy. It is quite different from the table used now; I mean the table of temperatures. The whole time was five hours in steam heat, varying from 250 to 320 degrees Fahrenheit.

Int. 5. Have you in your possession the deed to which you refer in your last answer?

Ans. I have not; I sent it to the American Hard Rubber Company. When the American Hard Rubber Company bought out the Bevins heirs they wrote me a line—I mean the agent of the company wrote—saying they would give me one of their licenses during the term of Goodyear's patent if I would give up the deed that I received from F. A. Bevin. I sent the deed to them and they sent me one of their deeds. Before sending the deed to the company I had it recorded on the town-book, in Walpole, N. H.

Int. 6. Can you produce a certified copy of the deed from Mr. Bevin?

Ans. I can. I annex exhibit marked "B, W. W., Jr."

Int. 7. In preparing a set of artificial teeth according to the instructions given you by Bevin, state definitely what was first done, and so continue, as definitely as you can, a statement of the process.

Ans. The first thing was to fit a gutta-percha plate to our plaster cast. In the first place we take an impression of the ridge where we are going to put teeth, in wax or plaster. The thing so obtained would be a fac simile of the vulcanite as shown by the exhibit marked "C, W. W., Jr.," as regards the upper side of the vulcanite upon which the letter C is written. Then we pour in plaster into the impression so as to make
230 a plaster counterpart of it; then we fit a gutta-percha plate to that counterpart; then we arrange the teeth on the gutta-percha with wax; then we trim that up so as to represent the plate in rubber. The wax and gutta-percha together occupy the place of the rubber now. The wax was melted on around the teeth and trimmed off with a knife so as to give the right shape and thickness to the set. The teeth were first clamped in a model which held them in their proper vertical position, and while so held, wax was applied to them on the outside to fix them in position; then we opened the case and waxed them on the inside. The gutta-percha, wax, and teeth were then put into a plaster flask, which was made to fit them, then we opened the flask in the centre, removed the gutta-percha and wax, leaving the teeth in the flask; then I filled the space where the wax and gutta-percha were with rubber, and fastened the flask together with a large cotton cord wrapped round it tight. We introduced so large a quantity of rubber that the flask could not be quite closed, so as to allow for pressure afterwards, so as to compact the rubber in all parts; then we put it into a heater to vulcanize it, as already stated.

Int. 8. State what kind of teeth were used.

Ans. At that time we used carved blocks, single gum-teeth, and those called plain teeth, that is, teeth without gums. The carved blocks had gums, as shown by Exhibit C, the gums and teeth being carved in one block, groups of two or more teeth constituting a block.

Int. 9. State whether or not there were pins in the teeth, or blocks of teeth, around which the rubber was placed or forced, for the purpose of holding the teeth to the rubber base.

Ans. Carved blocks that I used were grooved blocks, the rubber being forced into the grooves so as to lock the parts together.

Int. 10. State whether or not Exhibit C was made by you, and if yea, when, where, and for whom.

Ans. Dr. I. A. Salmon made the teeth, and I made the plate and mounted them, for Mrs. Lane, of Westminister, Vt. In April, 1857, they were put in, and were worn seven years. The plate has
231 been cut into by various dentists, for the purpose of testing the rubber, and its shape altered, since Mrs. Lane had it.

Int. 11. Have you in your possession a set of artificial teeth made and mounted by yourself; if yea, will you present them, that they may be marked as an exhibit in this case, and state when they were made?

Ans. I have; I present a set which I made in July, 1857. They are marked "D, W. W. Jr."

Int. 12. State whether or not in the year 1857, or at any previous time, you had knowledge that other dentists used hard rubber for mounting teeth in the manner described by you substantially; and if yea, name such dentists, and the time when they were so using rubber.

(Objected to by the counsel for the complainants.)

Ans. I had knowledge of other dentists so using it. Dr. I. A. Salmon was using it in the winter of 1856 and 1857. There were four other dentists, I think, in this vicinity, that were using it—that took a patent right from Bevins, at the same time.

Int. 13. State whether or not you gave instructions to other persons in the use of hard rubber for mounting teeth, as described by you, and if yea, to whom, and when.

Ans. In the year 1867 I gave instructions to Dr. Whitney, of Fitchburg, Mass., how to use the rubber, and left him some of the compound—the rubber gum prepared by Bevin—to use. There were others that I gave instructions how to use it, but I think they did not use it at that time, in that year; but they have since got a license from the American Hard Rubber Company, and used it. When Bevin died, I ceased doing anything more about it. I was selling rights for Bevin.

Int. 14. While you were so engaged for Bevin, did any person, within your knowledge, object to the use of hard rubber for mounting teeth in the manner described by you?

Ans. Most all the dentists objected to it; yet there were quite a number that tried it—that made an experiment of it. Those who tried it liked it very much after trying it; that was in 1857. In 1858 and 1859 there were a great many that came out in its favor.

232 Int. 15. Is it within your knowledge that in 1857, 1858, or 1859, any person, other than Bevin & Goodyear, claimed to have a patent for the use of hard rubber as a base for artificial teeth, or claimed to be the inventor of the use of hard rubber for artificial teeth? (Objected to by the counsel for the complainant.)

Ans. I think there were. There were some things said by Bevin & Salmon, when I was there in 1857, about Cummings' claim—I think 'twas Cummings. At that time I was unable to determine what his claim was, but Bevin said he was ahead of any one on the rubber base. I don't know as there was anything more that I could state. I didn't enter into the case much.

(The testimony as to Bevin's statements was seasonably objected to by the counsel for the complainant—W. W., Jr.)

Int. 16. In 1857, state, if you know, how many set you mounted.

Ans. Thirty-six, I think it was, in 1857. I havn't used much but the rubber base since April 1, 1857.

Int. 17. State whether or not you have ever made gums, the teeth of hard-rubber, and of the same piece as *the of* plate.

Ans. I have so made them of pink rubber. Bevin showed me in 1857, in January, gum-colored rubber, but said it was brittle, and wouldn't make a good plate, and advised me not to use it. I have used English rubber this year for the gums. I say gum color, I mean pink. Bevin had a great variety of different colors that he showed me.

Cross-examination:

Cross-int. 1. Have you ever examined the description given in the reissued patent of John A. Cummings, dated March 21, 1865, of the method directed by him for making and using dental plates of hard rubber?

Ans. I never have.

Cross-int. 2. Please to examine the description as contained in the reissue patent as now shown you, dated March 21, 1865, and say if you mean to be understood that the mode of operation which Bevins

233 taught you in 1856 or 1857 corresponded, substantially or practically, with the mode given in that description.

(Objected to.)

Ans. I think it does.

Cross-int. 3. About when did Bevin die?

Ans. I should have to guess at it—I guess, 1858.

Cross-int. 4. You have spoken of the American Hard Rubber Company buying out the Bevins heirs; what did they buy out?

Ans. Mr. Bevin's son had charge of the rubber work here. When I saw him one day he said he was going to sell out to the American Hard Rubber Company; that was, his father's invention, the application of rubber to dental purposes. This is my only means of knowledge as to what the company bought from the Bevins heirs, except that I received a note from the company as I previously stated.

Cross-int. 5. Was the set, "Exhibit D," here produced by you made according to the instructions which you say Bevin gave you in 1857?

Ans. It was.

Cross-int. 6. You have spoken of several dentists having used this mode of mounting teeth in 1856 or 1857; did they all, so far as you know, get their instructions from Bevin?

(Objected to.)

Ans. They did.

WILLARD BALL.

Deposition of Nathan C. Keep.

Int. 1. What is your name, age, residence, and occupation?

Ans. My name is Nathan C. Keep; my age is sixty-four; my residence, Boylston street; and occupation is that of dentist as a specialty, though I am a physician.

Int. 2. How long have you been engaged in dentistry, and state somewhat in detail, your experience in the profession of dentistry?

Ans. I have been engaged in that profession since 1823. I
234 have kept myself posted in all matters that were going on in reference to the business. I imported French teeth about 1826, as near as I can recollect the date; they were mineral teeth; I was the first to introduce them successfully. I afterwards manufactured mineral teeth. In the year 1839 a medal was awarded to me by the Massachusetts Charitable Mechanics' Association, at its second annual exhibition. I have continued to manufacture mineral teeth and gums to the present time. In the report the committee say, "In the specimens exhibited, the appearance of the natural teeth, and the color of the gums, are almost perfectly imitated in an imperishable material."

Int. 3. State whether or not you have had knowledge of the use of vulcanized or hard rubber as a base for artificial teeth, and if yea, when you first had such knowledge.

Ans. I have had such knowledge. Sundry articles were published in the American Journal of Dental Science, which I was in the habit of reading at the time. On page 477, of the July number of that journal for 1856, is an article entitled: "India-rubber base for artificial teeth," which article I read soon after the issue of the number of the Journal. On page 83, of the October number for 1853, is an article referring to this use of rubber in the paragraph beginning with the words, "Before leaving," &c. Also on page 477, of the July number before referred to, is an article entitled: "India-rubber teeth," by Dr. Samuel Mallett, ending on page 479. All of these articles I read at the time, receiving the numbers of the Journal as they were issued. I have

written my initials on the margin opposite each of the articles referred to.

(Copies of the above articles are annexed, marked "Exhibit 3, W. W., Jr.," and "Exhibit T, W. W., Jr.")

Int. 4. When and where did you see artificial teeth mounted upon hard-rubber base?

Ans. Mr. F. A. Bevin called on me about the time that these articles were published in the Journal, and showed me a set of teeth that he wore in his mouth. They were single teeth on rubber base. The color was dark brown—the color of the rubber; I remember it was not polished,
235 and was not very smooth. Mr. Bevin urged (the counsel for the complainants objects to any evidence of the statements of Bevin as both incompetent and irresponsive) me to adopt the rubber for setting artificial teeth. He assured me it was good from his personal experience. That conversation was probably of an hour's length.

Int. 5. Did you accept Mr. Bevin's proposition; if not, why not?

(Objected to.)

Ans. I did not accept his proposition. I told him that my system was established; that I hadn't any leisure to experiment. In all cases of such inventions, it takes one or more years to try them, in order to demonstrate its advantages, and justify its adoption by dentists.

Int. 6. State whether or not you have seen any other specimen of artificial teeth mounted by Bevin; and if yea, when and where.

Ans. At the time referred to in the previous answer, at his request I furnished him with a block of six teeth, which he set in rubber base. He requested me to give him a block, which he took and returned to me with the teeth mounted, and said (objected to) that he did it. I present the block, marked "Exhibit E, W. W., Jr."

Int. 7. Have you mounted artificial teeth upon hard-rubber base; and if yea, when did you first mount a set in that manner?

Ans. I have so mounted them. The first set, or one of the first, I made for Mr. Fairbanks. This was in the month of June, A. D. 1859. That case was vulcanized by Bevin—young Bevin—as I had not the means of doing it at that time. This case was not satisfactory, and I took back the set and substituted gold, at the the request of Fairbanks, without additional charge.

Int. 8. When, if at any time, did you adopt the use of hard-rubber as a base for artificial teeth with a satisfactory degree of success?

Ans. About six months after the set was made for Fairbanks, I commenced using it cautiously, in such cases as I thought were suitable; sometimes with success and sometimes otherwise.

Int. 9 State whether or not you have attained a higher degree of success in the use of rubber for artificial teeth since the time referred to in your last answer.

Ans. Yes.

236 Int. 10. State whether or not you have manufactured gums of hard rubber.

Ans. I have not; I have studiously avoided so doing. In one case I made a set over, because from some accident, it did show; that is, the rubber came down so low as to occupy the place which I had designed for the gum.

Int. 11. State whether or not you have ever made the plate and gums in which the teeth are inserted in one piece of hard rubber or vulcanite.

Ans. As I understand the question, the answer is no, decidedly.

Int. 12. Look at Exhibit D and describe the part which you call the gum, and the part which you call the plate, and then state whether you

have ever made the plate and gums as described by you, in one piece of hard rubber or vulcanite.

Ans. The gum is the light-pink porcelain laying between the teeth below and the rubber above, but made in one piece with the teeth, of similar material, but differently colored. The plate is that part in the exhibit formed of rubber. I have never made gum and plate in one piece of hard rubber. Where I have used hard-rubber plates, I have used mineral gums.

Int. 13. State whether or not in your practice, or within your knowledge, hard rubber has been used successfully to represent the gums in sets of artificial teeth.

Ans. I have not seen any.

Int. 14. Have you examined a certified copy of a patent granted to John A. Cummings, dated June 7, 1864? and if so, state whether or not the specifications and drawings contain such a description of the process or mode of setting artificial teeth upon a hard-rubber base as to enable persons skilled in dentistry to prepare and use hard rubber as a base for artificial teeth, without other instruction or information.

Ans. I have examined such copy, and in my opinion it is altogether inadequate.

Int. 15. Are you acquainted with the patentee referred to in such last copy?

Ans. I am somewhat acquainted with him. I have had a street acquaintance with him for many years.

Int. 16. State whether or not Dr. Cummings did at any time
237 previous to June 7, 1864, make any objection in your presence, or within your knowledge, to the use of hard rubber as a base for artificial teeth?

Ans. No.

Int. 17. When and by whom were you first informed that Dr. Cummings claimed to be the inventor of the use of hard rubber as a base for artificial teeth?

Ans. I don't know that I can tell the date. It was by Mr. Josiah Bacon. It was in September, 1864. He called upon me and represented himself as the treasurer of the Dental Vulcanite Company, and demanded payment or royalty for the use of hard rubber as a base for artificial teeth. I then had a license for the use of rubber, but he said that I had no right under that license to make the plates and gums in the mode described. I was unwilling to take a license without an opportunity to examine the patent, or obtain advice in the matter; but Bacon was importunate and pressing, saying that the company wished to get through with the Boston dentists; that they were going through the country; and that he could satisfy me that it was all right; that the company had a capital of half a million, and that they would spend every dollar in protecting their licenses and enforcing the license against all parties, as I understood. Under these circumstances, and to avoid annoyance, I consented to take a license.

Int. 18. Have you examined a certified copy of reissued letters-patent to John A. Cummings, dated January 10, 1865, number 1848; and if so, do the specifications and drawings contain such a description of the process of mounting artificial teeth upon a hard-rubber base, as to enable a well-educated and competent dentist to mount artificial teeth in the manner claimed in such patent?

Ans. The description of the method of operations given in the specifications is not clear, nor such as a professional dentist would give, but

I think a skilful dentist might, by its aid, make a set of teeth, or, as the question expresses it, "mount a set of teeth in hard rubber."

Int. 19. Can you state whether or not Dr. Cummings, previous to June 7, 1864, had knowledge that you were mounting artificial teeth upon a hard-rubber base?

238 Ans. I cannot. I never made any secret of it. I don't know who knew it.

Int. 20. State at what time the process of mounting artificial teeth upon a hard rubber base was generally known to and practised by the dentists of Boston.

Ans. It has been known and practised more or less extensively among Boston dentists since the year 1857 or 1858, but I should say was not established as a mode of mounting teeth among the Boston dentists until about 1860. The high price of gold no doubt aided very much in its introduction.

Cross-examination:

Cross-int. 1. In your judgment what proportion of the cases for artificial teeth now made by Boston dentists are made of hard rubber?

Ans. I havn't any positive knowledge out of my own establishment. My impressions are that a majority of cases are now made in that way.

Cross-int. 2. What proportion are so made in your own practice?

Ans. That would correspond with my own—a majority.

Cross-int. 3. Do you take the introduction of hard-rubber plates to have been aided by the high price of gold by reason of their superior cheapness?

Ans. I suppose so?

Cross-int. 4. What other advantages besides that of cheapness do you consider to belong to hard-rubber plates as distinguished from gold plates?

Ans. The small specific gravity—lightness; that is the point in my mind. Elasticity is all bosh.

Cross-int. 5. What is the practical objection in your judgment to using hard rubber for the gums as well as for the plates?

Ans. So far as I have seen, the color is an insuperable objection.

Cross-int. 6. Who was the young Bevin who vulcanized the Fairbanks case for you?

Ans. He was son of F. A. Bevin: he had at that time a place at Water street, where he did the work, and afterwards had a desk at Codman & Shurtleff's depot.

239 Cross-int. 7. Please state the particulars in which you think the description given in the original Cummings patent of the mode of mounting artificial teeth in hard rubber is inadequate to instruct a competent and well-educated dentist to practice the invention?

Ans. One objection is that there is no direction as to what time or what temperature will complete the vulcanization. In the first place the description says, "the artificial teeth prepared in the usual manner," whereas the teeth used for rubber are specially prepared and in a different manner from what was usual. Then it goes on to say that "the plates and gums *b b* are formed in one piece," &c. There is no direction how it is to be packed, or how held; no direction given how to mould the rubber or other material so as to fit the shape of the mouth. Then there is no direction satisfactory as to how to adjust the teeth and gums to one another. There is no direction given how the plate and gums can be colored so as to imitate nature.

Cross-int. 8. Have you paid in full for the license you took from the Dental Vulcanite Company?

Ans. I paid half in money and half by note—fifty dollars in all.

Cross-int. 9. Is the note now overdue and not paid?

Ans. Yes.

Cross-int. 10. How long overdue?

Ans. I should think it was four months.

Cross-int. 11. Are you, or have you been, treasurer of United States Dental Union?

Ans. I am now.

Cross-int. 12. Is the circular now shown to you a circular issued by that association?

Ans. It seems to be. I think this was issued before the union was fully organized.

(This circular is annexed, marked "Complainants' Exhibit F, W. W., Jr.")

Cross-int. 13. Do the persons named in that circular as holding offices in the Dental Protective Union continue to hold them since the union has been fully organized; if not, what changes have been made?

Ans. I think so; I don't know of any changes.

Cross-int. 14. About how many dentists have joined this association?

Ans. I think seventy-five. The secretary will know certainly.

240 Cross-int. 15. Has the association a constitution and by-laws of which we can have a copy by paying the expenses?

Ans. It has; and you can have a printed copy without expense.

(The same is annexed, marked "Exhibit K, W. W., Jr.")

Cross-int. 16. At the time this association was formed, what claims of alleged patentees were pending against dentists in this neighborhood besides the claims under Dr. Cummings's patent?

Ans. A man from New York (I don't remember his name) claimed royalty for a vulcanizer, and I paid him thirty dollars. I never saw his patent. My belief is, these things averaged once a month. A man for enamel for plates—a German name—I paid him a fee, and some others did. Common report was that three or four men were claiming to be owners of patents for vulcanizers. I heard that down at Codman's.

Cross-int. 17. Have any of these parties, that you know of, brought suit against the dentists?

Ans. I don't know that they have. The New York Hard Rubber Company threatened suits. I don't know whether they brought them or not.

Cross-int. 18. Was the license which you held to use hard rubber before Mr. Bacon called upon you, as testified, a license from the American Hard Rubber Company?

Ans. Yes, I believe so. Mr. Franklin's name was signed as agent.

Cross-int. 19. In what respect is it necessary to have the artificial teeth which are designed for hard-rubber cases prepared specially?

Ans. They, the pins, must be, if the teeth are to be kept in their place by pins, very much longer. If not sustained by pins, there must be recesses in the teeth into which the rubber will fit, to lock the teeth in position, neither of which, long pins or slots, would be necessary for plate teeth.

Direct examination resumed:

Int. 21. Have you been called upon to pay the note mentioned in your answer to the eighth cross-interrogatory?

241 Ans. I was called upon to pay it; but I suggested to Mr. Bacon that I had not used the invention as much as I had intended, and, under the circumstances, it was no more than fair to let the note stand

for the present, and await the result of this suit, but that I would pay it if he insisted upon it. He agreed to refer the matter to the directors, and since that I have heard nothing from it.

N. C. KEEP.

Deposition of Roswell Cutler.

Int. 1. State your name, age, residence, and occupation.

Ans. My name is Roswell Cutler; my age is forty-seven; residence, Winter street, Boston; and occupation that of dentist.

Int. 2. How long have you been practising as dentist?

Ans. About twenty-one years.

Int. 3. State whether or not you have had knowledge of the use of hard rubber as a base for artificial teeth, and if yea, when, and of whom was such knowledge first obtained.

Ans. I have had knowledge of it. The first knowledge was from Mr. Bevin—the Bevin every one knows was connected with it. I cannot say when it was. Mr. Bacon was the first one who made a piece for me; he had a stand at Codman & Shurtleff's depot. I should think it was about eight years ago he made it.

Int. 4. State more definitely, if possible, your acquaintance with Bevin in relation to the use of hard rubber as a base for artificial teeth.

Ans. I only knew him at the time, as being connected with the first reports in relation to it. I had no personal acquaintance with him.

Int. 5. State whether or not you received instructions or directions from any one as to the use of hard rubber as a base for artificial teeth; and if so, when and from whom.

Ans. I think about a year after*wards* I first knew of Bevin
242 I employed Mr. Bacon at Codman & Shurtleff's in making pieces for me. I received no instructions or directions; he (Bacon) took my impressions and made the cases.

Int 6. State whether you have at any time introduced the manufacture of hard-rubber plates to your own office and under your own management; and if so, when.

Ans. I have; I introduced it in about 1860, and continued it since.

Int. 7. State whether or not it has been your practice to form the plate and gums in which the teeth are inserted in one piece of hard rubber or vulcanite.

Ans. It has not.

Int 8. Have you in any case made the gums of hard rubber?

Ans. Never.

Int. 9. What objection, if any, is there to the use of hard rubber for gums for sets of artificial teeth designed for permanent use?

Ans. They are not of good color—do not resemble the natural gums in color.

Int. 10. Have you examined a certified copy of a patent granted to John A. Cummings, June 7, 1864? and if yea, state whether or not the specifications and drawings contain such information and directions as would enable a dentist of ordinary skill and experience to make a set of artificial teeth upon hard-rubber plate without instruction or information from any other source.

Ans. I have examined such copy; it is not intelligible.

Int. 11. State whether or not since the year 1860 there has been an improvement in the method or processes of preparing and using hard rubber as a base for artificial *eeth*.

Ans. There have been improvements.

Int. 12. State whether or not the specifications and drawings in the patent referred to in the tenth interrogatory contain such information in reference to the use of hard rubber as a base for artificial teeth as was common to those of the profession who used hard rubber for that purpose during the first three months of the year 1864.

Ans. I should say not. We differed in the manner of putting them up, in some particulars, from the specifications.

243 Int. 13. State whether you are acquainted with Dr. John A. Cummings, of Boston; and if yea, for how long a time you have been acquainted with him.

Ans. I am; I have been acquainted with him for about fifteen years.

Int. 14. State whether not, at any time, said Cummings had knowledge that you were engaged in the business of preparing sets of artificial teeth upon hard-rubber plates.

Ans. I had no communication with him on that subject. I don't think he came to my office.

Int. 15. State whether or not, at any time previous to June 7th, 1864, said Cummings, to your knowledge, claimed to have been the inventor of the method of setting artificial teeth upon hard-rubber plates, to which you have referred.

Ans. I don't know exactly the month or time; it was about that time I heard his name connected with it.

Int. 16. Examine Exhibit D, and state whether or not the artificial teeth upon hard-rubber plates, of which you have spoken in this deposition, correspond substantially to the exhibit.

Ans. They do.

Int. 17. Are you the defendant in a suit pending in the circuit court of the United States, district of Massachusetts, commenced by the Dental Vulcanite Company against Roswell Cutler?

Ans. I am.

Int. 18. State the time when, in your opinion, the knowledge of the use of hard rubber as a base for artificial teeth was common among the dentists of Boston.

(Objected to.)

Ans. It began to be used in 1860 or 1861; it began to be common then.

Cross-examined:

Cross-int. 1. Are you a member of the United States Dental Protective Union?

Ans. I am.

Cross-int. 2. Is Dr. Willard Ball, of Walpole, a member?

Ans. I can't tell you.

Cross-int. 3. You say that about a year after you heard of the use of hard rubber as a base for artificial teeth in connection with Mr. Bevin, you had hard-rubber-case work done for you by a Mr. Bacon, in

244 Codman & Shurtleff's depot; are you not mistaken in the name; was it not Bevin, a relative of the Mr. Bevin first mentioned?

Ans. I think not; I have always understood it was Bacon. My young man with me almost always went to him; I seldom attended to such business myself; he said it was Bacon.

Cross-int. 4. Whom did you give your case work to next after this person?

Ans. To Dr. Lessure, in Hanover street.

Cross-int. 5. Will you go in the recess and look at an affidavit which you have heretofore given this case, and state whether you do not there

say "About one year afterwards—that is, after hearing of hard rubber as a base for artificial teeth—I employed one Bevin, who as I understood was a nephew or son of F. A. Bevin, to vulcanize cases for me—the Bevin whom I employed being then at Codman & Shurtleff's dental depot, Boston; that I employed said Bevin for about one year, and I then gave my work to one Lazieur, whose office was in Hanover street, in said Boston?" State first whether you remember having so said in your affidavit.

Ans. I can say it is very possible I may be mistaken in the names, as I employed him to make but very few pieces for me, and do not distinctly recollect about the name. I will look at the affidavit, as desired, and ascertain which is the correct name.

Cross-int. 6. In the defense of these suits, who has charge of the matter of obtaining evidence and procuring the attendence of witnesses?

Ans. The Protective Union chose a committee, of which Dr. Keep and Wetherbee are the members, I think; I mean a committee to attend to this matter.

Cross-int. 7. About how many members are there in the Dental Protective Union?

Ans. I should think about one hundred and fifty.

Cross-int. 8. Do you know the method which this Bacon or Bevin, whichever it was, in Codman & Shurtleff's place, employed in putting up teeth in hard rubber for you?

Ans. I do not. I know now how he did it, but I did not at the time.

245 Cross-int. 9. What are those particulars in which the practice of dentists of putting up teeth in hard rubber during the first three months of the year 1864 differed from the specifications of Cummings' original patent?

Ans. I did not understand the question on direct examination—the 12th direct interrogatory to which you refer. What I meant to say in answer to that interrogatory was that the mode used by dentists in the early part of 1864 differs from the mode used now; that we have made improvements in some particulars since.

(The witness having retired for a few minutes, says upon his return that he has no doubt the name was Bevin, not Bacon, of the person in Codman & Shurtleff's depot who did the work for him, and he has no doubt he so stated in the affidavit.)

Cross-int. 10. You say you know now how young Bevin did your hard-rubber-case work; how do you know it?

Ans. I know it from my experience.

Cross-int. 11. Do you mean that having yourself ascertained the way to do such work you assume that he so did it?

Ans. No, I do not.

Cross int. 12. Will you explain what you do mean by your answer before the last?

Ans. We operate differently. I know how he must have done it, though we operate differently now; we have improvements.

Cross-int. 13. In what respects does your present method differ from his?

Ans. We vulcanize much longer time. That makes a different-colored rubber.

Cross-int. 14. Do you mean that you use a lower temperature than he did, and use it for a longer time than he?

Ans. I do.

Cross-int. 15. And you find that this change improves the color?

Ans. It improves the color, makes it lighter, and makes the material more dense—capable of a better polish?

Cross-int. 16. Do you think of any other particular in which your present method differs from that of young Bevin?

Ans. We get better joints where the teeth are joined together in blocks. Formerly the method of packing them was such that there was a pressure which tended to separate the blocks.

246 Cross-int. 17. Will you name the improvements which have been made since 1860 in the method of processes of preparing and using hard rubber as a base for artificial teeth, as testified by you in your eleventh answer-in-chief?

Ans. We have an improved color. The rubber is made more dense and stronger, which enables us to make a better polish or finish; and we have improved in keeping the blocks from separating.

Cross-int. 18. You say you have not in your own practice made hard-rubber gums; are they made to some extent by other dentists; and if so, for what purposes of dental practice?

Ans. I don't know of their being made by anybody. We do all that we can to conceal the rubber. We use a mineral for the gums.

Cross-int. 19. In your affidavit, before referred to, you make this statement: "Rubber gums are not used except in the instances of the insertion of temporary sets of teeth following the removal of the natural teeth, and during the time necessary for the gums and mouth to become fitted for the reception of a permanent set of artificial teeth." If I understand this correctly, hard-rubber gums are used by some dentists for this temporary purpose. Is that so?

Ans. Not for a gum.

Cross-int. 20. What does your affidavit mean, if it does not mean what I just said?

Ans. We do not make a gum of hard rubber. We sometimes bring the hard rubber out in front for the convenience and comfort of the wearer. In case the rubber is exposed, we cut the rubber off and allow the tooth to stand upon the alveolar ridge. This is disadvantageous; and where we can bring the rubber out without exposing it, we do so. I am referring now to temporary sets only.

Cross-int. 21. What proportion of cases for artificial teeth, in your own practice, is of hard rubber?

Ans. Probably nine-tenths are of rubber.

Cross-int. 22. Do you know anything of the whereabouts of young Bevin?

Ans. No.

Cross-int. 23. Have you not heard any member of the Dental Protective Union speak of his whereabouts?

Ans. No.

247 Cross-int. 24. Do you know whether any steps have been taken to procure his attendance as witness in this case?

Ans. No.

Cross-int. 25. Have you not heard from some member of the Dental Protective Union that some such steps have been taken?

Ans. No; I have heard talk about Bevin, and trying to get him, and about where he was. Some said he was in the western part of New York, and some in Canada. This was about a year or so ago, and I have heard nothing since.

Direct examination resumed:

Int. 19. State whether your answer to the seventh cross-interrogatory

that there were in the Dental Protective Union about one hundred and fifty members, is derived from actual knowledge or rumor.

Ans. From rumor. I have approximated it.

ROSWELL CUTLER.

The counsel for the defendant, by consent of the counsel for the complainants, here introduces the affidavit of Dr. Henry Jordan, heretofore taken in the case of the Dental Vulcanite Company vs. Roswell Cutler, in lieu of his deposition; which deposition is as follows:

I, Henry Jordan, of Boston, in the county of Suffolk, and Commonwealth of Massachusetts, on oath say that I am of lawful age to testify; that I am a dentist by profession; that I have practised as such since the year 1844; that, in the year 1855, in the month of August, I visited Europe, and was in Paris in the month of October of that year, where I met Charles Goodyear, of the United States, at the office of Dr. Gage, dentist, Paris; that Dr. Gage made a model or counterpart of said Goodyear's mouth in wax for an upper set of artificial teeth; that from that model or impression I made a plaster Paris cast or mould; to this cast or mould I adjusted or adapted mineral teeth, which were single, and without metallic or porcelain gums; that said Goodyear then
248 took the cast or mould with the teeth so adjusted, and by a process then not known to me, and without then, or at any subsequent time, giving me any information as to the process, applied to said teeth a plate of hard or vulcanized rubber in a single piece; that I remained in Paris until the month of January, 1856; that I saw Goodyear several times during my stay in Paris; that he wore the set of teeth upon the hard-rubber base as above described, and stated to me that he preferred the set on rubber plate to set upon gold plate, which Dr. Gage and myself had previously made for him.

It is my strong impression that the rubber plate of the set referred to was of a black or very dark color—much darker than the rubber plates now in use.

(Signed) HENRY JORDAN.

Deposition of Ira A. Salmon.

Int. 1. State your name, age, residence, and occupation.

Ans. My name is Ira A. Salmon; age is thirty-five; residence, 29 Boylston st., Boston; occupation, that of dentist.

Int. 2. How long have you practised as a dentist?

Ans. I have practised since 1855. I commenced the study of dentistry in 1848.

Int. 3. Have you or not knowledge of the use of vulcanité or hard rubber as a base for artificial teeth?

Ans. I have.

Int. 4. When, and from whom, and under what circumstances, did you first obtain knowledge of this branch of dentistry?

Ans. As near as I can recollect, and from the date which I have of the transaction, or soon after it, was the last of October or first of November, 1856. From F. A. Bevin I first obtained knowledge. Bevin came to me; was introduced by George R. Whitney, of N. Bridge-
249 water, having in his mouth a set of teeth inserted in hard-rubber plate or base. He said—(objected to.) They were made by him either two and a half or three and a half years previous, and worn by him that length of time. There was one peculiarity in the teeth

he wore; the four incisors, the right central, and lateral incisor were placed on the left side, and the left ones on the right side. I think he said (objected to) they were made in New Haven by him, Dr. Mallett having assisted in taking an impression, etc. He wished to sell the rights to use this improvement. We finally made an arrangement between Whitney and myself on the one part, and Bevin on the other, in writing.

(The agreement in writing is produced, a copy of which is annexed in lieu of the original by consent, marked "G, W. W., Jr.," counsel for complainants objecting to any proof of said agreement, whether original or by copy.)

We did business under this agreement for a time; how long a time I have no means of stating positively, but until the vulcanizer or heater was removed from Water street, without consent of Whitney or myself, to Cambridge. We said nothing about the cancelling the agreement, but let the vulcanizer be removed without holding him to the agreement, in consideration of his not doing so well as he had expected in the business, and of his doing our work for us thereafter at a reduced rate. After Bevin died, his son carried out the agreement as to doing our work at the reduced rate. We were, however, furnished with a license by Bevin himself first, and afterwards from the American Hard Rubber Company after Bevin sold out to them. Bevin's license was signed by Goodyear, I am very positive.

Int. 5. Was there not an organization of a company under the agreement made with Bevin?

Ans. There was. There were no officers chosen, but treasurer. I was the treasurer. It was understood there were but three of us, and no regular company was formed.

Int. 6. Did you or not, at any time, either as such treasurer or individually, issue a notice or advertisement to the public in reference to the use of hard rubber as a base for artificial teeth?

250

Ans. Not as treasurer of that company, but as a practical dentist I did.

Int. 7. Can you refer to, or furnish a copy of, the advertisement so issued by you as a dentist?

Ans. I put an advertisement in Norton's Improved Calendar from 1501 to 1900, entered according to act of Congress, in 1858, by Joseph Warton, jr., in the clerk's office of district court of Massachusetts. The advertisement to which I refer is upon page opposite Table No. 8, and in the margin opposite advertisement I have put my initials.

(A copy of the above advertisement is annexed, marked "Exhibit U, W. W., Jr.")

Int. 8. Do you know Dr. John A. Cummings?

Ans. Not personally. I know him by reputation only.

Int. 9. State whether or not you have knowledge that, previous to June 7, 1864, Dr. John A. Cummings, or any person in his behalf, claimed that he was the inventor of the process of mounting artificial teeth upon hard-rubber plate.

Ans. I always supposed that F. A. Bevin was the inventor, from the fact of his statement of the agreement between him and Cummings, by which Cummings was to have a certain part of the profits, if the patent was obtained. He (Bevin) stated that he was the inventor. Under the agreement he (Dr. Cummings) was to furnish the money with which to experiment, and then to have a portion of the patent by way of payment; and after Cummings had furnished about one hundred dollars in money, not feeling satisfied of a beneficial result, he failed to furnish

any more funds, and the agreement was consequently cancelled. He stated, also, that he had applied to Dr. Cummings after having brought the thing to the then present state of perfection, with the desire of getting him interested in introducing the patent—the art—to the profession, and helping him to carry it out.

(The counsel for the complainants seasonably objected to all testimony of Bevin's statement given in the foregoing answer.)

The taking of the deposition was here adjourned, by agreement, until Monday, June 26, at 10 a. m., when the deponent appeared and testified as follows:

251 Int. 10. State whether or not the agreement, in writing, a copy of which is marked Exhibit G, was signed by F. A. Bevin in your presence.

Ans. It was, just before he returned home after having made his arrangements here to do work according to his agreement. The agreement under which we had been working was verbal, but similar to this written one. This was written out to embody all the ideas in our mind which we had been working upon, and had formed previously to this; and for the sake of getting his signature to what we had already agreed upon verbally, and as we had not time to copy it, he signed the original paper, which was drawn up hastily.

Int. 11. This agreement is dated December 1, 1856. Was that the day when the original verbal agreement was made, or the day when this written agreement was signed?

Ans. It was about the day, or a day which we chose, being within the time which we had been working under the verbal agreement. It was dated back to about the time that this verbal agreement was made.

Int. 12. State whether or not you have continued to manufacture sets of artificial teeth upon hard-rubber plates.

Ans. I have.

Int. 13. Has any other person than Bevin, at any time, claimed to be the inventor of the use of hard rubber for such plates; and if so, when and by whom was such claim first made?

Ans. The first intimation that I ever had that there was any claim made by any other person than Bevin was while spending my vacation in Maine, in the summer of 1864, the dentists all through Maine having been visited, where I was staying, by agents or those who were not visited, having circulars or letters of the Dental Vulcanite Compaay.

Int. 14. Look at "Exhibit D," and state whether or not plates of which you have spoken as having been made by you answer substantially to said exhibit.

Ans. They do, to all intents and purposes, so far as outward appearance goes. I don't know what the fastenings are inside.

Int. 15. State whether or not you have made plate and gums
252 in which the teeth are inserted in one piece of hard rubber or vulcanite.

Ans. I should say I never have. I *I* have made, in some cases where the gums would not show above the tops of the teeth, for temporary sets, the plate to fill out the deficiency of jaw, or to bring the lip out to its proper fulness. This we cannot call gum, because it does not take the place of or represent gum; though it may have been by some persons erroneonsly called gum; and in cases where the gum shows above the necks of the teeth, and the patient requires short teeth, to avoid exposing the rubber, we cut it all away, and let the teeth rest against the natural gums.

Cross-examination:

Cross-int. 1. You say in your answer to the fourth interrogatory, that you and Dr. Whitney were furnished with a license by Bevin himself first, and afterwards from the American Hard Rubber Company, after Bevin sold out to them; can you produce the paper which you speak of as the license from the American Hard Rubber Company?

Ans. I can, unless it has become misplaced; I haven't seen it for a long time; I will look for it, and produce it, if it can be found. The American Hard Rubber Company has acknowledged me as one of their licensees, so I haven't taken much care of it. It was given to me, I am quite positive, by the younger Bevin, as the American Hard Rubber Company's agent. They have acknowledged me as a licensee in their publication. They did not so acknowledge me until the fact was stated to them by Bevin—that is my name was not printed—that I was a licensee. I suppose the reason that my name was not printed was that I had not paid money directly into their hands, but received my license from them in exchange for the one I held from Bevin prior to the assignment of his right to them.

(Witness subsequently appeared and stated that he had searched for, and was unable to find, the license referred to.)

Cross-int. 2. Do you mean that the one you held from Bevin
253 was the verbal agreement afterwards put into writing, marked "G"?

Ans. I do not; it was a blank filled out by him in addition to this, separate from it.

Cross-int. 3. Then, as I understand you, you had in all two licenses under the hard-rubber patent, one of them coming from Bevin the elder, himself, as interested under that patent, and the second one coming from the American Hard Rubber Company, the younger Bevin agent; am I right?

Ans. I don't see but what that is correct. Bevin showed me his power of attorney from Goodyear, and his agreement with Goodyear, by which Goodyear gave him an interest or one-fourth in the application of the rubber to the mouth, or for dental purposes, in consideration of his being the inventor of such application.

(Counsel for the complainants seasonably objected to the latter sentence of the answer, as irresponsive and incompetent.)

Cross-int. 4. Were your first and second licenses above mentioned, duplicates, except as to the mode of signing?

Ans. They were not alike; the wording was not the same, yet to all intents and purposes they were the same, except the signing.

(Objected to by counsel for complainants, as a legal opinion given without asking, upon a paper which it does not yet appear cannot be produced to speak for itself.)

Cross-int. 5. Can you produce the first one of these two licenses?

Ans. The last one was taken in exchange for the first, which was given up to young Bevin, for the American Hard Rubber Company, and I retained no copy.

Cross-int. 6. Did the two licenses bear the same date?

Ans. I can't say positively, but I think not. I think the new license was dated the time I received it—a few days previous.

Cross-int. 7. Did the license in each case run to yourself as licensee?

Ans. I am quite positive it did. They were either to myself, or to myself and Dr. Whitney.

Cross-int. 8. (De bene esse.) Have you seen what you speak of as Bevin's power from Goodyear, and agreement with Goodyear—in your

answer to the third cross-interrogatory—since Bevin showed it to you, as you say?

Ans. I have not.

254 Cross-int. 9. (De bene esse.) Do you know where it is, or how we can get a sight of it?

Ans. I do not.

Cross-int. 10. Have you made hard-rubber plates in your practice, and do you now occasionally make them, having teeth attached to them, and without mineral gums?

Ans. I have, and do occasionally, as before stated.

Cross-int. 11. Are you a member of the legal committee of the Dental Protective Union?

Ans. I really have forgotten. If the committee consists of the board of managers, I am. I am a member of the committee to procure evidence, &c.

Cross-int. 12. Have you as a member of such committee made any efforts to obtain evidence of the son or sons of F. A. Bevin?

Ans. I have held correspondence with William A. Bevin several times with reference to obtaining his deposition.

Cross-int. 13. When did that correspondence take place?

Ans. I should say within two or three weeks. I had a previous correspondence with him on the same subject about the time these suits were commenced or just after.

Cross-int. 14. Where was he living at each of these periods?

Ans. At Greensville, Canada West.

Cross-int. 15. Is he still living there, as far as you know?

Ans. I believe he is. My last letter written to W'm A. Bevin was not answered until two or three weeks after I wrote him; the answer is dated the 20th of June.

Cross-int. 16. Have you in your possession Mr. Bevin's replies to the several letters you have addressed to him on the subject of his appearance as a witness?

Ans. I never addressed him on the subject of appearing as a witness except in this last letter, but in former letters to get facts which might have a bearing on this case The answers to those letters I gave to the counsel for the defendant.

Cross-int. 17. (De bene esse.) What Goodyear was it whose name was signed to the power and agreement that Bevin showed you as testified in your answer to third cross-interrogatory?

Ans. I am not positive, but have the impression that it was Charles, I cannot say whether senior or junior.

255 Direct examination resumed:

Int. 16. If you have in your possession a letter of Bevin dated the 20th of June, and referred to in your answer to the fifteenth cross-interrogatory, please produce it.

Ans. I have, and produce it.

(Counsel for complainants consent to the production of a copy in lieu of the original—objecting to the use in evidence of the letter at all.)

(The said copy is annexed marked "Exhibit J, W. W., Jr.")

I. A. SALMON.

Deposition of Isaac J. Wetherbee.

Int. 1. State your name, age, residence, and occupation.

Ans. My name is Isaac J. Wetherbee; my age is forty-eight; my residence is forty-six Dover street, Boston; and occupation, surgeon dentist.

Int. 2. How long have you been engaged in the practice of dentistry?

Ans. I commenced practice permanently in 1846.

Int. 3. State whether or not you are defendant in a suit pending in the circuit court of the United States, for the district of Massachusetts, between the Dental Vulcanite Company and Isaac J. Wetherbee.

Ans. I am.

Int. 4. Examine set of artificial teeth marked "Exhibit D," and state whether or not you have knowledge of the process by which the plate thereof is prepared, and the teeth thereof inserted within it.

Ans. I have.

Int. 5. When, where, and from whom did you first obtain knowledge of the process of preparing sets of artificial teeth like "Exhibit D?"

Ans. From F. A. Bevin, at my office, 10 Tremont Row, Boston, in the autumn of 1856; I think it was November.

Int. 6. State the circumstances that occurred at the interview
256 with Bevin, spoken of in your last answer.

(Objected to so far as the question calls for statements of Bevin.)

Ans. Mr. Bevin called upon me, and exhibited a part of under set, I think. I wouldn't be positive whether 'twas a part or a whole set of teeth mounted upon a rubber base. He then expressed entire confidence in the entire practicability of its use for artificial dentures. I examined the case carefully, and pronounced that style of work unfit for use. He wished me to engage with him by furnishing capital, and by experiment in perfecting the material or modus operandi, by which it should be made acceptable for general use. I declined to make any effort with him in that direction, because of my want of confidence in the feasibility of the project. During our conversation, he stated to me that he was the bona-fide inventor of the plan originally. He mentioned no other person as having any right in part with him. I was knowing by report, (objected to,) however, at the time, that, in 1851 or 1852, *that* he had at John A. Cummings's office experimented for the purpose of obtaining artificial dentures and teeth in one piece and of one material, namely, rubber. At the time these experiments were going on, when reported to me at the dental depot of Jones, White & Macready, 16 Tremont Row, I remarked (objected to) that their efforts would prove entirely unsuccessful, as it would be impossible to give the rubber the color, translucency, and appearance of the natural organ, the tooth. Knowing of the experiments by report, I asked Mr. Bevin how far he succeeded at Dr. Cummings's office in obtaining results by his experiments. His reply was, it was a waste of time and money, for teeth never could be made of rubber to imitate the natural teeth.

Int. 7. State whether or not there were any other peculiarities or defects in the teeth and plate shown to you by Bevin, as stated in your last answer, other than those stated by you, namely, color, translucency, and appearance of the teeth.

Ans. The teeth were mineral teeth; no defect in the appearance of them, but the teeth were cleaving from the rubber plate, undoubt-
257 edly from improper vulcanization of the rubber or defects in the pins, or both. The rubber had a soft appearance, as compared with the rubber properly vulcanized, therefore repulsive.

Int. 8. State whether or not you are acquainted with Dr. Samuel Mallett, of New Haven.

Ans. I am.

Int. 9. If, at any time, you have had knowledge of experiments made

by him or of sets of artificial teeth inserted by him in hard or vulcanized rubber, state when and under what circumstances such knowledge was obtained.

Ans. I think it was in August, 1860, the American Dental Convention was holden at New Haven, Connecticut. During its session I visited him at his house, when he exhibited to me several half sets of teeth mounted on rubber base. They were the first I ever saw, which commended the material as being practicable for dental purposes. He stated to me that he had tested it, I think, for the term of seven years, and that its durability had not been affected by the test. He also stated that he and F. A. Bevin were the first to obtain any satisfactory results; that he and Dr. Smith and Bevin were the first to obtain the pink of vermilion color, now used in rubber. He also stated that a dentist from New York, name forgotten, after having seen his work of rubber, soon after came into the place and advertised its use extensively, thereby stealing his thunder.

(The foregoing testimony, as to statements of Dr. Mallett, was seasonably objected to.)

Int. 10. State whether at any time, other than that mentioned by you, you have met F. A. Bevin.

Ans. I have no recollection of having any personal conversation with him subsequent to that period, though I have seen him passing on the street.

Int. 11. If you have made or prepared plates of hard rubber for artificial teeth, state when the first plate was so prepared by you and any circumstances which may have led to its preparation.

Ans. After my return from the convention at New Haven, such was my faith in the rubber from the representations of Dr. Mallett, that I commenced its use, and produced this set, marked "I. J. W.," and by the commissioner "Exhibit H, W. W., Jr.," the set being now
258 broken, and in two pieces, a third piece being missing. The result obtained was quite satisfactory, since which time I have continued to use it for artificial dentures. A student of mine, Dr. W. W. Russell, who had been using it for some time, fully approved of its use.

Int. 12. State whether or not, at any time, you have prepared the plate and gums in which the teeth *was* inserted in one piece of hard rubber or vulcanite.

A. I have, for temporary sets. It was all one plate. There was no false gum. A set made by me about a year and a half since, temporary use, illustrates my answer to this question, and is offered as an exhibit, and marked by the commissioner, "I, W. W., Jr."

Int. 13. Look at "Exhibit D," and describe that which you regard as the gum.

Ans. The porcelain portion above, and connected with the teeth in the process of making.

Int. 14. State whether or not, within your knowledge, the part described by you in your last answer as the gum has ever been prepared of hard rubber, so as to be accepted by competent and skilful dentists.

Ans. It has not; and never can be.

Int. 15. Have you examined a certified copy of a patent issued to John A. Cummings, dated June 7, 1864?

Ans. I have.

Int. 16. State whether or not the specifications and drawings of said patent contain directions and information sufficient to enable a well-educated and skilful dentist, without other aids, to make hard-rubber plates and insert artificial teeth therein.

Ans. They do not.

Int. 17. State whether you are acquainted with Dr. John A. Cummings; and if yea, state whether, at any time, and if so, when, you have had any conversation with him in reference to the invention or manufacture or use of hard rubber as a base for artificial teeth.

Ans. I am acquainted with him. In August, 1863, he was at my office, No. 10 Tremont Row, for professional services. During the time that he was there we had conversation upon the use of rubber in dental practice. I stated to him that I was pleased with its use in my prac-
259 tice. He said that he was the inventor of it, and had applied for a patent. I think he mentioned the time when he applied. I asked him why he did not obtain it if he was the bona-fide inventor. His reply was, "I did not obtain any practical result." There *was* other conversations with reference to the very general use then being made of rubber. The reason why I asked him why he did not obtain letters-patent (objected to) was that I did not believe him to be the inventor. I have met him frequently since that time at my office and elsewhere, and he has never made any objections to its use by myself or others.

Int. 18. Do you know whether or not Dr. Cummings, previous to August, 1863, had used hard rubber in his business or profession as a dentist?

Ans. I have no knowledge of his using it in his practice, and am persuaded, (objected to,) from the tenor of my conversation with him, that he had never produced a practical set.

Int. 19. What did he say in the conversation to which you refer and upon which the opinion which you have stated was based?

Ans. He said to me that during his connection with Flagg, his former partner, their patients preferred gold for artificial dentures, and consequently they had nothing to do with it.

Int. 20. When was the method of inserting artificial teeth in plates of hard rubber first generally practised by the dentists of Boston?

Ans. I think it has been in use by some for from seven to nine years, and in general use from four to six years.

Int. 21. State, if you can, whether or not John A. Cummings has been a resident of Boston since 1856, and a practising dentist during any or all of that period of time.

Ans. He has been a resident of Boston, with the exception of one or two years. I think in 1862 and 1863 he was residing in the country. From 1856 to 1860 he was in the practice of dentistry with Dr. Flagg.

Cross-examination:

Cross-int. 1. Are you the president of the Dental Protective Union?

Ans. I am.

260 Cross-int. 2. Is the pamphlet now show*ing* you, marked "K, W. W., Jr.," the constitution and by-laws of that association?

Ans. I believe it to be.

Cross-int. 3. Will you produce a correct list of the members of that association and annex it as an exhibit to your deposition?

Ans. I will.

Cross-int. 4. In your affidavit heretofore given in this case, you speak of a son of F. A. Bevin as engaged at Codman & Shurtleff's depot in and after 1859; do you know where that son now is?

Ans. I do not, except by hearsay.

Cross-int. 5. What have you heard said?

Ans. I have heard it stated that he resided in Canada.

Cross-int. 6. Whereabouts in Canada?

Ans. Greenville or Greenfield, or some such name.

Cross-int. 7. From whom did you learn this?

I heard it, I think, first from Dr. I. A. Salmon.

Cross-int. 8. When?

Ans. I think 'twas in the month of October last.

Cross-int. 9. What is the official name of that committee, consisting of Drs. Keep & Salmon, having in charge the procuring of testimony, &c., for this defense?

Ans. I don't know as I understand your question. I can't say that Dr. Salmon is one of that committee; I don't know but he is. Dr. Keep is one, I am one, and I have forgotten who the other member is; don't know whether there are two or three. The name given by the union is, I think, the legal committee, or the committee on obtaining counsel or procuring evidence.

Cross-int. 10. Have you, or has either of the "legal committee," to your knowledge, made any attempt to procure the testimony of young Bevin?

Ans. I believe they have.

Cross-int. 11. With what success?

Ans. It is not known. It cannot be known before a week from to-morrow—before the 29th or 30th.

Cross-int. 12. Why not?

Ans. Because the messenger despatched to obtain his presence will not, probably, return much before that period.

261 Cross-int. 13. Who is that messenger?

Ans. It is William H. Towne, of Boston; lives in Indiana Place.

Cross-int. 14. When was he despatched?

Ans. I think he left the 13th of this month.

Cross-int. 15. Did the dentists who used hard rubber for plates for artificial teeth in 1857, and subsequently, in Boston, keep secret their method of making plates, and mounting the teeth?

Ans. I have no knowledge as to the fact. I believe they did not, but am not positive.

Cross-int. 16. Do you think Dr. Cummings had means of knowing, as early as 1858, the method that was so used by the various Boston dentists?

Ans. I believe he had.

Cross-int. 17. Is the plate produced by you, marked "I, W. W. Jr.," a practically useful thing for temporary sets?

Ans. It is; having simply a plate the style of gold, but of greater thickness.

Cross-int. 18. (De bene esse.) Who told you that F. A. Bevin had experimented, in 1851 or 1852, at Dr. Cummings' office, with rubber plates and teeth combined?

Ans. I believe I had conversation with J. F. Freeman on the subject, of Grantville, and also with others at the dental depot. I don' think I can name any of the others.

Cross-int. 19. (De bene esse.) You stated, in your affidavit before mentioned, that Dr. Mallett, in your conversation with him at New Haven, in Aug., 1860, informed you "that he obtained, in connection with Dr. Bevin, the first practical result from rubber as a base for artificial teeth, and that a set made by them had been in wear for six or seven years without any perceptible change;" did Dr. Mallet tell you this at that time?

Ans. He did, with the additional remark that it compared favorably with gold.

Cross-int. 20. You say, in the same affidavit, that Dr. Mallett then exhibited to you, at his office, specimens of his work, teeth set in plates of hard rubber, and of a character corresponding to work now made; did he do so?

Ans. He did.

Cross-int. 21. You say, in the same affidavit, "in the month of August, 1860, after my return from New Haven, I was at the cellar
262 of Codman, of said firm, (Codman & Shurtleff,) where young Bevin packed an upper case of teeth in my presence, and explained to me the modus operandi; immediately after this interview with young Bevin I made a full set of upper and under teeth, a part of which are now in my possession, and which I now produce and mark "I. J. W.;" is that statement correct?

Ans. I think that statement there is partly at fault from our constant habit of saying, when applied to by patients, "Do you make teeth so and so?" I do; when, in fact, I extract the teeth, take the impression, fit the plates, select the teeth, and superintend the completion of the work; other less responsible portions are done by my assistants. Dr. Russell was then in my employ; he had been for some time putting up this work, and to him was left to complete any portion not done by me. I think he had previously received instructions from young Bevin. A few days previous to this time that I saw young Bevin, Dr. B. F. Whitney, of Buffalo, New York, was at my office and detailed fully (the counsel for the complainants here desires the commissioner to require the witness to answer the question; the counsel for the defendants insists that the answer of the witness is responsive and proper) the modus operandi of the manufacture of rubber plates, and yet, from his explanation of the manner of putting up rubber plates, I could not have succeeded, probably, in my first or second attempt, in making a good set of teeth, owing to so many contingencies which experience alone will correct. With the foregoing explanations I answer the question in the affirmative.

Cross-int. 22. What proportion of artificial plates in your own practice are made of hard rubber at the present time?

Ans. I suppose I make 92 out of 100.

The taking of this deposition was here adjourned by consent until Monday, the 26th day of June, when the deponent appeared and wished to make the following corrections and explanations of his previous answers:

In answer to the eleventh direct interrogatory, I mean to say that Dr. W. W. Russell was formerly a student of mine, but at that time in my employ; and I wish to add to that answer, that the case then made was vulcanized by young Bevin at his office, at Codman & Shurtleff's depot.

263 In answer to the seventeenth direct interrogatory I wish to correct the sentence beginning "He said that he was the inventor," &c., by substituting therefor, He said that he and Bevin were the first to experiment, and he (Cummings) had applied for a patent.

In answer to the seventeenth cross-interrogatory I wish to add, Such cases as "I, W. W., Jr.," are only admissible for temporary sets where there is a long lip preventing the rubber from showing.

(The witness here produced the list of members referred to in the third cross-interrogatory, and annexed it as an exhibit marked "L, W. W., Jr.")

ISAAC J. WETHERBEE.

Deposition of Elbridge G. Leach.

Int. 1. State your name, age, residence, and occupation.

Ans. My name is Elbridge G. Leach; my age, fifty-one; residence, Stoughton, Mass.; my business is that of dental surgeon, at 24 Essex st., Boston.

Int. 2. How long have you practised as a dentist?

Ans. Twenty-eight years coming autumn.

Int. 3. State whether or not you have knowledge of the use of vulcanized or hard rubber as a base for artificial teeth; and if yea, state when, from whom, and under what circumstances you first obtained such knowledge.

Ans. I have used it, I think, since 1856—the spring of 1856 I first, I think, obtained a knowledge of it; commenced using it in that year. I should suppose I made the first set of teeth before July of that year. I first obtained a knowledge of it by meeting accidentally with the elder Bevin—his first name has escaped me. I was in at the office of another dentist, Dr. I. A. Salmon, of Boston, and was there introduced to Mr. Bevin. Within a day or two, or rather at that time, he introduced this subject—called my attention to it. He showed me cases of vulcanized-rubber work that he had made. One whole set he
264 wore in his own mouth—I mean one upper set. He showed me another piece of work that had been worn by himself in the same place—his mouth—which, in wearing, had been broken, having been made too thin by taking his mould from a metallic plate; I think he said gold. The case that was broken, I should say, was about the color of the rubber in "Exhibit C, W. W., Jr.," in the part which fits the left alveolar ridge. The plate was made thin by its being, as he said, one of his earliest experiments, and he not having any dentist to show him how to prepare a model for a mould; he said he therefore took for his model for a mould a metallic plate which he had in his mouth, which of course made the mould very thin. He called upon me a day or two afterwards, at my office, and wished for me to interest myself in it, and take a share, a part in the whole concern, and assist them in making the thing more practical, or rather in getting the thing before the public, and getting up the appliances to produce it. He proposed to give me a portion of the whole thing provided the Hard Rubber Company didn't object, as he said they had some claim on the use of the rubber. I declined having my name in any way connected with it. He said that he was determined to have some dentist connected with it who would carry it through; that he had tried with one, and after going along for a little while, he gave it up and would have nothing more to do with it. The name of this dentist Mr. Bevin gave me as Dr. J. A. Cummings. I asked him if the reason that he selected him was because he was an advertising dentist, and he (Bevin) said it was not; that he was looking for somebody that did a great deal of business, and a friend of his, with whom he was talking about it, said that Cummings did a great deal of business, and advised him to go there and enlist him in it. I asked him why he did not continue on with Cummings, and he said he was a man of not much bottom, soon discouraged, and said that he would have nothing more to do with it. He wanted me then to render him some assistance about the farther going on with it, as to the thickness of the plate and the flasks
265 and the attachment to the teeth, and if I would do so he offered to give me the license to use it. I did so; commenced using the rubber, made the first case for my own mouth near the month of July,

1856, I think. I made, very soon after that, four other sets. I stopped making them because I didn't want to go on making them until I had tested those I had made. They were all made for acquaintances that I could see frequently. I made one upper set for J. B. Wetherbee, cashier of North Bank, Boston; one for Mrs. Augustus Reed, of East Boston; two cases for Mrs. W'm H. Jameson, Brookline, all of which are still in existence, and all but one are worn, and for that I made a duplicate within a few days. I dropped off from making them from that time—the time of making those five sets—until the American Hard Rubber Company brought suits against Mayo and McDougal, or about that time. There was a reason for the length of time I dropped it. After Mr. Bevin had received from me what assistance he wanted, he asked me to give him a certificate of the fact of my use and approval of it, and if I would prepare one he would call at my office within a few days and bring me a license and take the certificate; and, as I learned afterwards, by hearsay, he was attacked the next day by brain fever, and never had his reason after. Their next agent—of the Hard Rubber Company—did not see fit to countenance my claim, to give me a license. This agent was Bevin's son; he held the place for some years, I should think, and then, by some means, I don't know what, it was taken from his hands; and then, in time, another agent called upon me, who acknowledged my right to use it. This explains why I was cautious about using it between the years 1856 or 1857 and 1862, or the time the suit was commenced against Mayo & McDougal. Bevin, the elder, stated to me that the Hard Rubber Company had no claim to its application to dentistry, but they had to the use of the material; but so far as the application of it—the discovery of the application of it to teeth—was concerned, he was, he believed, the first prime inventor. Bevin said that he and the Hard Rubber Company agreed to introduce it under the general patent of the American Hard Rubber
266 Company, and share the result.

(The counsel for the complainants seasonably objected to so much of the foregoing testimony as purports to give statements of F. A. Bevin.)

Upon reflection I see I have made a mistake of a year; it was 1857 instead of 1856 that Mr. Bevin made these statements to me.

Int. 3. Examine "Exhibit D," and state whether or not the five sets made by you in 1857 corresponded substantially to said exhibit; and if not, in what respects were they different?

Ans. In all points but one they all did, to external appearance. Two of them in all points were like "Exhibit D." Three of them would be better represented by "Exhibit H," because they were made of single teeth.

Int. 4. State whether or not you have made the plate and gums in which the teeth are inserted of one piece of hard rubber or vulcanite.

Ans. So far as representing the gums is concerned I have never used the rubber in my life. I have always avoided bringing it into sight as much as possible, in every place and particular. We sometimes build out and make the plate thick for instance on the sides above the back teeth, supposing it to be an upper set, with rubber, but we have been in the habit also of doing the same thing with gold, putting on what some call not gums but cheekers.

E. G. LEACH.

Deposition of Seth P. Miller.

Int. 1. State your name, age, residence, and occupation.

Ans. My name is Seth P. Miller; my age is fifty-six; my residence is Worcester, Mass.; and occupation, that of dentist.

Int. 2. How long have you been in the practice of dentistry?

Ans. Thirty years.

267 Int. 3. State whether or not you have used hard or vulcanized rubber as a base for artificial mineral teeth; and if so, when you first so used rubber.

Ans. I have used it; I first used it about 1861.

Int. 4. State whether or not you had previous knowledge of its use by others; and if so, when, where, and from whom was such knowledge first obtained.

Ans. I had previous knowledge of its use by others. The knowledge of how to work it, or do it, was obtained from Mr. F. A. Bevin. I derived the knowledge from him, February 24 and 25, 1858, at Cambridgeport, Mass. I was at his place those two days.

Int. 5. State what was done by Bevin, if anything, in the manufacture of the plates of hard rubber, and the insertion of artificial teeth at the time and place referred to in your last answer.

Ans. F. A. Bevin stated that the plates—the impression of the mouth—was taken in the usual way, and the plates formed on the cast. The plates consisted of gutta-percha. After the teeth were arranged on the gutta-percha plate, they were covered with plaster; then the covering removed, the gutta-percha plate and wax taken out, the rubber introduced in their stead, the plaster moulds brought together again, the rubber being pressed in, and then the mass put into the vulcanizer to be heated. Bevin did this himself—went through the whole of this process—no other person being present besides myself.

Int. 6. Examine set of teeth, marked "Exhibit D," and state whether or not the set or sets manufactured by Bevin at the time and place mentioned by you, and by the process described in your last answer correspond substantially to "Exhibit D," or differed therefrom in any and what particulars?

Ans. The work or pieces put up by him corresponded substantially with "Exhibit D." Some of the sets may have been single teeth; these are blocks; but the process for blocks and single teeth is the same.

Int. 7. State whether or not the color of the rubber in "Exhibit D" is the same, or similar to the color of the rubber in the work referred to in your last answer, made by Bevin?

Ans. I shouldn't see any particular difference.

268 Int. 8. State whether or not at any other time you saw Bevin engaged in making sets of artificial teeth on India-rubber plates; and if so, when and where?

Ans. I never saw him make them at any other time.

Int. 9. State whether or not you have a license for the use of hard-rubber for dental purposes; and if so, by whom and when was it granted?

Ans. I have such a license, granted by F. A. Bevin, Feb. 25, 1858.

(By agreement of counsel, a copy of the license was introduced and marked "M, W. W. Jr.")

Int. 10. State whether or not the license referred to in your last answer was made at Cambridgeport at the time Bevin made sets of artificial teeth upon hard-rubber plate as described by you in your answer to the fifth interrogatory.

Ans. The license was given at the same time; it was all under one transaction.

Int. 11. State whether or not at that time, or at any other time, you made agreements with the said Bevin in writing in reference to the use of hard rubber as a base for artificial teeth; and if so, will you produce such writings.

Ans. I hold in my hand two papers, dated respectively, Feb. 24 and Feb. 25, 1858, signed by Bevin, copies of which I hereto annex, marked "N, W. W., Jr.," and "O, W. W., Jr."

Int. 12. State what sum of money was paid by you to Bevin at the time these agreements were made and in consideration thereof.

Ans. Fifty dollars.

Int. 13. Did you at any other time pay any sum to Bevin, or his legal representatives, on account of, or in consideration of, his said agreements?

Ans. No.

Int. 14. If at any time previous to or at the time you commenced the manufacture of hard-rubber plates for artificial teeth in 1861, as stated by you, you received instruction from any other person than Bevin, give the name of such person.

Ans. I received none from any other person.

Int. 15. Had you any reason for delaying the manufacture of hard-rubber plates as a base for artificial teeth from the time you re-
269 ceived your license in 1858 to 1861; and if yea, state your reason? (Objected to.)

Ans. The matter was very little known—or the process, I would say—in my immediate vicinity. It being considered a cheap way of setting teeth, the patients who employed me didn't call for it. There was very little call for it indeed.

Int. 16. State whether or not you are acquainted with John A. Cummings, of Boston, dentist; and if yea, state whether or not you have at any time heard him make any declarations as to the use of hard rubber as a base for artificial teeth; and if so, when.

Ans. I am acquainted with him, and have been for nearly twenty years. In his office previous to any knowledge derived from Bevin, and also afterward, in conversation touching the use of hard rubber as a basis for artificial teeth, the said Cummings admitted to me that he had used it and failed, that somebody else had got the start of him.

Int. 17. State the reason you had, if any, for visiting Dr. Cummings at his office.

(Objected to.)

Ans. It was for the purpose of social and professional intercourse. I was pursuing a course of practice different from the rubber business, that of setting artificial teeth on platinum plates, called continuous gum-work. In that practice I was successful. Dr. Cummings often asked me, "How is it that you succeeded so well in that, and I cannot?" He said to me, "I have made some forty sets, and they have all broken down, and I have had to make them over again." Among the objects I had in calling upon him was to encourage him in that practice, and stimulate him to proceed in it; that, in my judgment, it was superior to all other methods of constructing artificial teeth, and if properly and thoroughly made, they would be durable. It was in these conversations that the subject turned upon hard rubber, and that subject was discussed.

Int. 18. Specify, if you are able, the years and months when the conversations took place, and the statements were made by Cummings, as testified to by you in your answer to the sixteenth interrogatory.

Ans. As nearly as I can remember the years are 1855, 1856, and 1857; I cannot state the months.

270 Int. 19. In your answer to the sixteenth interrogatory you say: "In his office previous to any knowledge derived from Bevin, and also afterward in conversations touching the use of hard rubber as a basis for artificial teeth, said Cummings admitted to me that he had used it and failed; that somebody else had got the start of him." State, if within your recollection, the year and month after your interview with Bevin said Cummings made the admission or statement given by you in your answer to the sixteenth interrogatory.

Ans. Bevin called on me at my house about one year previous to my receiving instruction from him at his shop or office—I should say in the early part of 1857—exhibited a set of teeth made by himself, and also said that Dr. Mallett, of New Haven, was then doing the work, and, I think, also a Dr. Wheat of the same place. Mr. Bevin drew from his mouth a set of teeth which he claimed to have made himself, like "Exhibit D." I confessed myself (counsel for complainant objects to testimony of the conversation) sceptical in regard to the use of it for artificial teeth. I said to him, at that time, that I had heard of Dr. Cummings having used it and failed. He admitted the fact, and, as an offset, referred to the succesful practice of Dr. Mallett, and also of a Dr. Ball, of Walpole, N. H. Mr. Bevin seemed impatient, because I did not fall in with his views readily, and exhibited some fretfulness, saying that the work is to be introduced into Worcester, and if you don't take a license, somebody else will. I replied that I didn't like to be driven into any new practice, and must wait until the system had proved to be successful. In about a year from that time, I called on him, and took out my license. At this interview he described to me the process by word, but showed me nothing until the time of my license. I have stated that the conversations with Cummings took place in the years 1855, 1856, and 1857, and in the year 1857 after my conversation with Bevin, at Worcester, previous to my taking out a license.

(The counsel for the complainants seasonably objected to the use in evidence of any papers passing between Bevin and the witness,
271 whether by original or by copy—taking however no exception to the use of a copy in lieu of the original; also to all statements of Bevin not heretofore objected to.)

Cross-examination:

Cross-int. 1. Are you a member of the Dental Protective Union?

Ans. I am.

Cross-int. 2. When did you join it?

Ans. Within one year.

Cross-int. 3. Can you state from recollection whether you joined it before or after the first of January, 1865?

Ans. I cannot; I have the means at home of verrifying it.

Cross-int. 4. In the setting of artifical teeth in platinum plates mentioned by you in your seventeenth answer, was any hard rubber or like substance used?

Ans. No.

Cross-int. 5. Was the process for making the hard-rubber plates, as Bevin described it to you at his interview with you in Worcester, in the early part of 1857, the same as that which he afterwards taught or showed you when you took out your license?

Ans. The description at Worcester corresponded with the execution at Cambridgeport.

Cross-int. 6. Did the description at Worcester correspond with the instruction at Cambridgeport, meaning by that the instruction given to you at the time you took your license?

Ans. Yes.

Cross-int. 7. I understand you to say that in the year 1855, in the year 1856, and in the year 1857, after the interview with Bevin, at Worcester, and before the instruction and license at Cambridgeport, you had conversations with Dr. Cummings upon the subject of the use of hard rubber as a base for artificial teeth; is that correct?

Ans. It is, to the best of my recollection.

Cross-int. 8. You have stated what Dr. Cummings said thus, as I understand you: That he admitted to you that he had used it, and
272 failed; that somebody else had got the start of him. Will you give this as his language, or as the substance of what he said?

Ans. I give it as his language.

Cross-int. 9. Will you give it as his language used in each one of the conversations held during the three years mentioned? If not, on which one of the conversations held, did he use that language?

Ans. I cannot state those to be the exact words used in each of the conversations, comma for comma, and so on, but the tenor—the purport—of his admissions was the same. I could gather nothing else during those conversations than that he had tried the matter and failed; had not been successful.

Cross-int. 10. Well, do you now mean that you give the expression I have quoted above as his language, or the tenor or purport of his language?

Ans. I mean to give it as an expression of his language, as I have stated, and also the whole purport of the conversation was to show that he had made the attempt, and that it had failed in his hands.

Cross-int. 11. Do you mean to be understood that Dr. Cummings used the particular expression above quoted at any one of the conversations with him upon this subject?

Ans. I do mean to say so, and so stated to his agent, D. C. Bates, when he called on me to take a license. I expressed my surprise at the time, and gave my reason.

Cross-int. 12. How many conversations in all do you think you had with Dr. Cummings in which his previous use of hard rubber for artificial plates was mentioned during the three years 1855, 1856, and 1857?

Ans. I made several calls, and the thing was frequently talked of.

Cross-int. 13. Can you come no nearer than several?

Ans. No, sir; I cannot tell whether three, five, or eight. I was in the habit of calling on Dr. Cummings frequently when in Boston.

Cross-int. 14. Can you state at which one of these conversations Dr. Cummings used the particular expression above quoted?

Ans. I cannot.

273 Cross-int. 15. Can you state whether anybody was present at any conversation when he used it.

Ans. We usually sat down together in his front room, by ourselves. I don't remember that any one was present at any time.

Cross-int. 16. Did the doctor, in any of these conversations, even mention the fact of his having applied for a patent?

Ans. No.

Cross-int 17. Do you remember what led to the introduction of this subject in the conversation between you?

Ans. Well, as I had heard that rubber work was being done by some persons in the profession, I asked him his opinion of it, and it was during

such conversation, in answer to such questions, that I derived from him the information—his statements—as above.

Cross-int. 18. Did you, at that time, take any particular interest in the subject of the use of hard rubber for artificial plates?

Ans. As the subject was then comparatively new to me, I felt very little interest in it, believing as I then did that a vegetable production could not answer well for artificial teeth.

Cross-int. 19. Was Dr. Cummings a man somewhat given to trying new things in dentistry during this period?

Ans. Not to my knowledge. The most that I have ever known of him in the way of making a noise, was his advertising mouth-washes and tooth-powders. I never knew that his was an inventive mind.

Cross-int. 20. Did you talk with him on these various occasions when you called to see him, about various new things which were then receiving the attention of dentists in relation to their general practice

Ans. I don't remember talking of various things—a multiplicity of things. Our conversation was mainly upon setting teeth upon platinum and incidentally about the rubber work. The rubber work didn't seem to engage Dr. Cummings' attention but very little indeed. He hadn't been successful, and there wasn't much to be said about it.

Cross-int. 21. When did you begin setting teeth in platinum?

274 Ans. In the year 1852, as nearly as I can recollect, in the winter. At that time I hadn't heard of rubber work.

Cross-int. 22. Did you pursue your experiments and work of this description from that time until 1858?

Ans. I did, most indefatigably.

SETH P. MILLER.

Deposition of William P. Leavitt.

Int. 1. State your name, age, residence, and occupation.

Ans. My name is William P. Leavit; my age is forty; residence, Dorchester, Mass.; I am a surgeon-dentist in Boston; have been so employed about eight years.

Int. 2. State whether or not you have had knowledge of the use of vulcanized or hard rubber as a base for artificial teeth; and if yea, when and where, and of whom was such knowledge first obtained.

Ans. I think the first knowledge I had of hard rubber was about six years ago. I think the first knowledge I obtained of it was through the dental journals.

Int. 3. State whether or not at any time previous to the time named in your last answer, you had knowledge of any attempts to use hard rubber as a base for artificial teeth; and if yea, give a full account of such efforts as far as known to you.

I can't say that I ever knew of an attempt previous to that to use it.

Int. 4. State whether or not previous to 1859, you knew any experiments, made either by yourself or by any other person, with rubber, for the purpose of making sets of artificial teeth and plates and gum in one piece, or for the purpose of making plate and gums of hard rubber.

Ans. I know of and assisted in making one experiment somewhere between 1850 and 1853, I should say. The experiment was made

275 by F. A. Bevin. The attempt was made to produce a rubber base with the teeth of the same material. The experiment was a failure. That's the only experiment that I ever knew or assisted in.

Int. 5. State where the experiment was made, who were present, what

was done in the nature of process or work for the purpose of obtaining the desired result; and describe the result.

Ans. It was performed at the rooms of Dr. J. A. Cummings, dentist, Boston. Mr. Bevin and myself only, were present. It was Sunday. I recollect of Mr. Bevin's bringing some rubber in his pocket-handkerchief; he proceeded to prepare it for introduction into the fire—into the muffle I might say; a common muffle which we used for making teeth, which was already in position. The result was a black, charred piece of something, resembling charcoal more *more* than anything else.

Int. 6. How was the mould, if you had one, for forming the teeth, made or obtained?

Ans. The mould which we used for the plate was one that was taken from the bench; had been used for plates before. The teeth were shaped by his fingers, I recollect.

Int. 7. State the circumstances or reasons which caused you to be present at the experiment made by Bevin as stated by you.

Ans. I don't know as I can give any particular reason for being present, other than that I was engaged in mechanical dentistry, in the employ of Dr. Cummings. I was with him for seven years from about 1850.

Int. 8. Had you or not any previous acquaintance with Bevin?

Ans. No previous acquaintance to the time I went to Dr. Cummings. Mr. Bevin was constantly in and out at the office of Dr. Cummings. Mr. Bevin was in the habit of taking pieces of work home at his place in Cambridge, and finishing them up and returning them to the office—pieces of plate-work, gold, silver, artificial work generally.

Int. 9. State what your means were, if any, of knowing about the work done in the office during the time that you were at Dr. Cummings's.

Ans. For the whole period that I was with Dr. Cummings I had the entire control of the mechanical department. There wasn't a
276 piece of mechanical dentistry that went out of the office but what went through my hands.

Int. 10. State whether or not any other experiments in making hard-rubber sets of teeth were made by Bevin at the office of Dr. Cummings while you were there.

Ans. I never knew of any other experiments.

Int. 11. Did Cummings within your knowledge make any experiments in the use of hard rubber for making sets of artificial teeth, or in the manufacture of plates as a base for artificial teeth?

Ans. I never knew him to make an experiment.

Cross-examination:

Cross-int. 1. Are you a member of the Dental Protective Union?

Ans. I think I am; I won't be positive.

Cross-int. 2. In your affidavit given in November last in this case, you say this: "About the year 1853 Dr. Cummings took a room in another building than that in which I worked, and in that building employed a man named Austin Wallace." Where was the building in which you worked, and where was the building in which Dr. Cummings took the room about the year 1853?

Ans. They were separated by a few buildings, perhaps ten rods. I think the building where Dr. Cummings and myself were engaged was about 23 Tremont Row then; it is Tremont street now; I think the building where Austin Wallace worked was 11 or 13 Tremont Row then.

Cross-int. 3. Of whom did Dr. Cummings hire the room in 11 or 13 Tremont Row?

Ans. I think Mr. Nathaniel J. Bradlee, architect.

Cross-int. 4. Was Mr. B. F. Cook, a lawyer, then in that building?

Ans. My impression is that he was not.

Cross-int. 5. Where was Mr. Cook's office at the time when Dr. Cummings and Austin Wallace had the room in 11 or 13 Tremont Row?

(Objected to on the ground that there's no evidence tending to
277 show that Cummings and Wallace had a room together.)

Ans. That I am unable to say.

Cross-int. 6. How long did Dr. Cummings keep that room where Wallace was employed in 11 or 13 Tremont Row?

Ans. Perhaps a year.

Cross-int. 7. Where is this Mr. Wallace now—where does he live?

I think he lives in Gloucester, Mass.

Cross-int. 8. What is his business there?

Ans. He practices dentistry.

Cross-int. 9. When did you last see him?

Ans. I should say three weeks ago.

Cross-int. 10. Where?

Ans. In Boston, at my office.

Cross-int. 11. Did he come there by appointment?

Ans. No, sir.

Cross-int. 12. Do you know whether steps have been taken to procure his testimony in the case by the defendant?

Ans. I do not.

Cross-int. 13. Where did Bevin reside between 1850 and 1853, when, as you say, he was doing plate work for Dr. Cummings?

Ans. At Cambridgeport, Mass.

Cross-int. 14. Are you sure it was as early as 1853, that Mr. Bevin was employed by Dr. Cummings?

Ans. I think I am; it was about that time; I won't say positively. I should be willing to say, however, it wouldn't vary six months.

Cross-int. 15. It may have been for aught you remember to the contrary as late as the fall of 1853, or winter and spring of 1854, that Bevin was first employed by Dr. Cummings, may it not?

Ans. No, sir; I should say it was earlier than that. If it varied either way, it was earlier than that.

Cross-int. 16. Do you think then that his first employment by Dr. Cummings was not later than the middle of 1853?

Ans. I should say it was somewhere in that vicinity.

Cross-int. 17. How long did Mr. Bevin continue to be so employed by Dr. Cummings?

I don't know as I could say exactly; perhaps six months, perhaps a year.

278 Cross-int. 18. And during this six months, or twelve months, Mr. Bevin was in the habit of doing plate-work, silver, gold, and artificial work generally, for Dr. Cummings at his (Bevin's) place at Cambridgeport?

Ans. Not generally; occasionally, when we were in a great hurry Mr. Bevin would take a piece home and finish it up for us. It wasn't our custom to give him work from day to day.

Cross-int. 19. What other artificial work, besides gold and silver, did Bevin do at this time for Dr. Cummings?

Ans. No other kind of work.

Cross-int. 20. How many pieces of gold or silver plate-work, can you say that Bevin did during such period?

Ans. I couldn't say. I have no means of knowing at all.

Cross-int. 21. State to the best of your recollection.

Ans. I wouldn't like to say; I wouldn't like to fix upon any definite number of pieces.

Cross-int. 22. Can you say from recollection that he did as many as ten?

Ans. I would say again that I wouldn't like to fix upon a definite number. I only know he did a number of pieces.

Cross-int. 23. Will you say he did as many as five?

Ans. Yes, I should think I should be safe in saying that he did that.

Cross-int. 24. Was this experiment of Mr. Bevin's at making plate, gums, and teeth all of rubber, made during or before his employment by Dr. Cummings?

Ans. I should think it was about that time.

Cross-int. 25. Do you mean about the commencement of his employment?

Ans. It was during some portion of his employment by Dr. Cummings.

Cross-int. 26. Can you not state exactly when you went into Dr. Cummings' employment?

Ans. It was in 1849 or 1850. I can't state exactly now.

Cross-int. 27. Can you state when you left his employment?

Ans. No, sir; I can't state exactly. If I could I could state when I entered it, as I was with him just seven years.

279 Cross-int. 28. Did Dr. G. H. Flagg go into practice with Dr. Cummings, during this seven years?

Ans. No, sir; Dr. Flagg went into business when I left, at the expiation of seven years.

WM. P. LEAVITT.

Deposition of Dennis S. Bartlett.

Int. 1. State your name, age, residence, and occupation.

Ans. My name is Dennis S. Bartlett; my age is thirty-nine; residence is Roxbury, Mass.; and occupation, that of dentist; I have been a dentist sixteen or seventeen years.

Int. 2. Were you or not formerly acquainted with F. A. Bevin?

Ans. I was.

Int. 3. When did your acquaintance with him begin, and how long did it continue?

Ans. It commenced in 1851 or 1852. I thought I could tell on my former examination the exact date, but my books were burnt three or four years ago. It continued up to his death, in about 1860 or 1861, as I think; it might have been in 1859.

Int. 4. State whether or not you had knowledge of the use by Bevin of vulcanite or hard rubber as a base for artificial teeth; and if yea, state when and where you first knew of its use by him.

Ans. It was in 1854 I first had knowledge of its use by him. He came to my office with a case that he was wearing in his mouth, which he said was made by himself, assisted by a dentist in Connecticut; I think it was Dr. Mallett; I have an impression the name was Mallett, or something like that; it sounded like that; he (Mallett) took the impression. He (Bevin) moulded it himself. I don't know whether the impression was taken from a gold plate or his mouth. This was in 1854, the latter part of the year, I think. The case was a dark-black one, made from black rubber, and a very uncouth set of teeth. It was very dark—had dark-green-

280 ish streaks in it: He desired me at that time to become interested with him in the application of hard rubber to artificial teeth for

dental purposes, which request he had made to me on my first interview with him, but it was not then hard rubber, but a different material. I told him I would do so. He said that he wished to go to New York on some business, and he would return and take up his residence here at Roxbury or Boston. He did not return as I expected, and when he did return, it was in 1856, I think; it might have been in 1855; I think in the early part of 1856, in about a year from that time; it might have been fifteen months. On account of his vacillation I refused to have anything to do with him. He then went to Boston, and in a short time I heard of him at Dr. Salmon's, through my brother. I could now state, though I couldn't previously. He returned to my place again, and I might say, reconsidering my former objection, I entered into an arrangement with him, taking a verbal lease. This was in 1856. I afterwards took a written lease, in February, 1857, a copy of which I hereto annex, marked "P, W. W., Jr."

Int. 5. State the circumstances of your first interview with Bevin, referred to in your last answer.

Ans. He came to my office in 1851 or 1852, with a preparation of guttapercha for filling teeth, and during the operation of filling the teeth, he suggested to me that he could make sets of artificial teeth, teeth and plate all of one piece of rubber, not of hard rubber, vulcanite, but of a softer kind. He thought it would be elastic to the mouth, and teeth would be elastic; there wouldn't be that jar to them. I suggested to him the impracticability of it on account of color. He thought he could overcome that, and desired me to become interested, as he wanted some one, some good dentist, to become interested in it, as there might something come out of it if it succeeded, and he would come and work for me upon wages if I liked. I could not accede to his terms, as I was just starting in business, and could not afford to spend money on experiments, as I thought that was a decided experiment, and might be a failure. I sug-
281 gested to him he could come in and see Dr. Morton, or Dr. Cummings, and other dentists—I think I mentioned Dr. Hitchcock; I mentioned several dentists that he might see, that might be willing to experiment with him. I think I was more definite upon Dr. Morton than the others.

Int. 6. Is it within your knowledge that Bevin either did or did not enter into a business arrangement with either of the dentists mentioned by you to him?

Ans. Only through Bevin; Bevin and I had a conversation in regard to Dr. Cummings, when Bevin came to me after I concluded to take hold of it in 1856. I suggested to him the practicability of taking out a patent in case it proved successful, as I thought then it looked practicable—that is the hard-rubber case that he showed me—it being an improvement on the other. He said that the hard-rubber companies had covered the ground, that if there was anything in the teeth he had made arrangements with Goodyear for the application of it to teeth for dental purposes; that Dr. Cummings had attempted to take out a patent under the experiments he had with him, as to the softer kind, but they refused to grant one, saying it was no novelty; it was not a patentable case. After that Mr. Goodyear came to my office and confirmed Bevin's word, and said that any arrangement that I should make with Mr. Bevin would meet with his *the* approbation or would be confirmed by him.

Int. 7. State whether you were ever instructed in the process of setting artificial teeth upon hard-rubber plates; and if so, when and by whom.

Ans. I was, by F. A. Bevin, in 1856.

Int. 8. Have you a specimen of artificial teeth mounted upon hard-

rubber plates by yourself, and if so, state the time when, and detail the process of mounting.

Ans. I have a specimen made by myself, assisted by Bevin, which I produce marked by the commissioner "Q, W. W., Jr.;" it was made in 1856. They were made for a lady who is now in the State of Maine, but they were too full for her, and were exchanged for a new set the same year. I commenced by taking an impression of her mouth;
282 then I formed a plate upon that impression. I was obliged to get up dies for it; the plate was a metalic plate. Then we formed the articulator; then we ground the teeth to fit the plate; we then put the teeth and plate into soft plaster, inserting one-half at a time, making it the (mould) in two pieces; we then pulled them apart, removed the wax and plate; the wax was used to stick the teeth to the plate; we then warmed the case in two pieces in plaster, one piece having the teeth in it; then warmed the rubber after cutting it into small pieces; packed the mould full of the rubber; then put the two pieces of the mould together, wound it with twine; then put it into the vulcanizer and vulcanized it.

Int. 9. Do you know Dr. John A. Cummings?

Ans. I do.

Int. 10. Do you know whether or not he had knowledge in 1856, that Bevin and yourself, either together or separately, were engaged in mounting teeth in the manner shown in the set exhibited by you, marked "Q, W. W., Jr.?"

Ans. I coul'n't say that he had knowledge, except that in conversation with Bevin he said that Cummings said he would have nothing more to do with it; that it was a failure, and he had lost money enough in it, and would have nothing more to do with it.

Int. 11. Has Cummings or any person in his behalf, within your knowledge, objected to your use of hard rubber as a base for artificial teeth?

Ans. Not until 1864. I received a call from D. C. Bates, agent, professing to be of the Dental Vulcanite Company, formed by Cummings and others; he wanted to know if I was ready to take out a license under the new company. I replied "What company?" He then informed me that it was the company known as the Cummings Dental Hard Rubber Company. That was my first knowledge that such a company existed. I treated it with considerable levity, asking him what the dentists wouldn't patent next. I gave him a history of my experience with the hard rubber, doubting Cummings' right to the monopoly of its use.
After some conversation which I coul'n't state now, he left and
283 said he would call again. He called again, and said that he had no authority to make the proposition, but wanted to know how I would feel if I came into the arrangement, and some shares were assigned to me. He made the proposition as if the thing might be done but he had no authority to make the arrangement—little evasively. I told him no, I wouldn't be guilty of doing my brother dentists so gross an injustice. He told me I should have to come into it, as all the dentists were coming into it, and I should have to. He said that they had formed a powerful company, with five hundred thousand dollars capital, and no dentist could stand against them; that they would have to come into it. That was the meaning of it. The whole pressure was that I should have to come into it. We had a sparring conversation as to my opinions as to patents, etc.

(The counsel for the complainants seasonably objected to all testimony of conversation between himself and Bevin, and between himself and

Bates; also to the use in evidence of the alleged license of Bevin, not, however, excepting to the use of a copy thereof in lieu of the original.)

Cross-examination:

Cross-int. 1. Are you a member of the Dental Protective Union?

Ans. I am.

Cross-int. 2. How can you fix the time when Bevin first called upon you, and spoke of rubber teeth, and had the operation performed for himself by you, as you have testified?

Ans. It was in the office I first occupied. I rented it from D. C. Bates, in part of 1851 and 1852; that is the way I am enabled to fix it.

Cross-int. 3. When did you leave that office?

Ans. In 1852, December 25th; my rent was out January, 1853, as I paid by the quarter.

Cross-int. 4. What Goodyear was it that called to see you and sanctioned Bevin's proposition, as you have testified?

Ans. Bevin said it was the younger Goodyear; that's all I know of his first name. The gentleman who called to see me, was apparently about fifty years of age, a tall man.

284 Cross-int. 5. (De bene esse.) If I understand you correctly, Bevin, when he came to see you in 1856, said to you in substance that the Hard Rubber Company's patent would protect the exclusive right of the hard rubber artificial plates, and there was no need of any other patent for that; did he say so?

Ans. He did.

Cross-int. 6. (De bene esse.) Did he say that the application which Dr. Cummings had made for a patent, was for making dental plates of soft rubber?

Ans. He said it was soft rubber. Plates and teeth were to be made, as I understood him, a different thing from what he, Bevin, had produced.

Cross-int. 7. Did he say, as you put it in your affidavit heretofore made in this case, "That he and Cummings had tried a soft rubber or gutta-percha and it was not satisfactory, and Cummings had tried to get a patent for that and failed, and that Cummings had no claim to or interest in the hard rubber which he now (1856) proposed to use, and that there was no need for a patent for that, as he could agree with me for the use of it in dentistry?"

Ans. That is correct, he said that; what brought it out was that I was going to be interested in it if it succeeded.

Cross-int. 8. Did Bevin, when he called to see you, the latter part of 1854, and showed you the case he was then wearing, say how he was then engaged, or anything about his residence, or condition, or business, at that time?

Ans. He said that he had got to go to New York after he had made his arrangements with me, upon some business, before he came to me to take up his residence in Boston or Roxbury; he thought he could color the rubber more satisfactorily.

Cross-int. 9. Did he at that time tell you how soon he expected to come and take up his residence here?

Ans. I expected him right away, as soon as he could settle his other business. I expected him very soon.

Cross-int. 10. Did he tell you what his other business [was]?

Ans. No, he did not.

D. S. BARTLETT.

285 *Deposition of James W. Bartlett.*

Int. 1. State your name, age, residence, and occupation.

Ans. My name is James W. Bartlett; I am twenty-eight; my residence is Roxbury, Mass.; I am a dentist, and have been so for ten years.

Int. 2. When did your apprenticeship as a dentist commence, and where and of whom did you acquire your first knowledge of the business?

Ans. In March 9, 1852, with Dr. Elisha Tucker I commenced. Dr. Tucker was at 1 West street, Boston.

Int. 3. How long did you continue with Dr. Tucker as a student?

Ans. Two years and a half.

Int. 4. State whether or not, during the two years and a half that you were with Dr. Tucker, you became acquainted with F. A. Bevin; if so, state the time when, and the circumstances of your first acquaintance with him.

Ans. I became acquainted with him at Jones & White & McCurdy's, at 3½ Tremont Row then, just before my vacation in the summer, in August, 1853; the vacation was in August I mean. I was in at Jones, White & McCurdy's selecting some material, when one of the young men referred to me as being a good person for Mr. Bevin to employ, he being in there at the time. He asked me some questions and my address, and I gave it to him. In a few days from that time he called on me at Dr. Tucker's, finding me engaged in manufacturing teeth in the cellar—baking teeth there. He, observing an old set of block teeth made for gold, asked me if he could have them. I gave them to him. He said "I am going to take this and vulcanize them for a gentleman acquaintance of mine," who, I understood him, lived in Cambridge. We talked in relation to the use of rubber, in the future, in the place of gold. He said that he felt confident it would take the place of gold almost if not entirely, and said he had great difficulty among the dentists in getting any one to assist him, as they didn't believe much in the thing, and were unwilling to engage in it. The teeth I gave him
286 were merely blocks of teeth—a refuse set. He took the teeth away with him, and in the course of a week or ten days he returned with the teeth vulcanized, and the color of the rubber they were vulcanized on was very dark—a dirty green. This was a week or ten days after, and I was just coming out of Dr. Tucker's office. He then took them away, telling me who they were for. The next time I saw him was near Scollay's building, in Boston, later in the fall, after I returned from my vacation. We were standing there talking, and I spoke to him jocosely in relation to his experiments with the rubber, and he replied that he was continuing them "up here," indicating up Tremont street. We then parted. I remember nothing particular that occurred between us until I was at Dr. Salmon's, after I left Dr. Tucker. In the half year after I left Dr. Tucker's, he (Bevin) came into Dr. Salmon's very often; he was assisted there by myself and the other young men in grinding up teeth there. At that time I am quite positive he told me he had been experimenting with Dr. Mallett, I think, at Hartford. He then, at Dr. Salmon's, had the rubber of various shades; the object was to get it as light as possible. The color of the rubber as it is now used is not, to my idea, changed or improved from what it was when I saw it at Dr. Salmon's. I understood that he and Dr. Mallett colored it red with red precipitate, and as I understood his later experiments were to get rid of that, and to bring the color of the rubber as near to

flesh color or white as he could; but he never succeeded—never got any nearer than that. He changed it at Cambridge, in his experiments, from red to black, and black to red again.

Int. 5. Do you know whether or not the set of teeth set upon rubber plate by Bevin, and which were given to him by you, were worn by any person; and if yea, by whom?

Ans. Yes, he told me they were, by a gentleman at Cambridge, whose name I don't remember, though I knew of him at the time. Subsequently I asked Mr. Bevin how the teeth worked, and he told me they worked well. This was the first set on rubber—the dirty-green set, that I know of. I asked him how the shade of the teeth corresponded
287 with his other teeth; how they looked. He said they worked very well; that the only trouble was, that he (Bevin) got them a little out of centre.

(The counsel for complainants seasonably objected to all testimony as to the statements of Bevin.)

Cross-examination:

Cross-int. 1. State, as nearly as you can, how long it was after you went into Dr. Salmon's office, that Bevin showed you there his improved rubber work.

Ans. I cannot tell. I was with Dr. Salmon but about three months. It was in the last three months in the half year—the last three months in 1854, I think it was—that Bevin showed me the rubber with the improved color, though I can't be certain.

Cross-int. 2. At what time in August, 1853, did your vacation at Dr. Tucker's commence?

Ans. That year I can't remember whether 'twas the first two or the last two weeks of the month.

Cross-int. 3. Can you, by inquiry or examination, ascertain the name of that Cambridge gentleman who took, as Bevin said, the set he showed you in 1853?

Ans. That would be almost practically impossible for me, from the fact it has slipped my mind. It may occur to me. I made no minute of it.

Cross-int. 4. When Bevin and you were talking near Scollay's building, in the fall of 1853, and he said he was continuing his rubber experiments "up here," indicating up Tremont street, did he give the name or any other description of the person with or for whom he was so continuing his experiments?

Ans. No, he did not.

Cross-int. 5. How do you know, if you do know, that the conversation with Bevin, in which he spoke of intending to vulcanize the refuse set you gave him for an acquaintance of his in Cambridge, was before and not after your two weeks' vacation in August of that year of 1853?

Ans. It is just as firm in my mind as 'tis that I had any vacation at all. I have a distinct recollection it was before my vacation.

288 Cross-int. 6. You swear to the time, then, only by your recollection of it, unassisted by any particular circumstance that you now recall?

Ans. My memory is so good in regard to that time, that I think I could swear it was before my vacation, as I said before.

Cross-int. 7. Was the name of that Cambridge gentleman, whom Bevin spoke of, Hurd?

Ans. I wouldn't take my oath upon that. It may, and it may not be. I have no impression either way about it.

Cross-int. 8. Have you any impression as to what the name was?

Ans. I have no impression as to the name. I think that Mr. Bevin said he was a man holding some position in the city or town government of Cambridge. My ideas are vague upon the subject. I only know he was a man of some note, perhaps a clergyman, or a prominent merchant, or something of the sort.

Direct examination resumed:

Int. 6. At the time you met Bevin, and spoke to him jocosely, near Scollay's building, and he replied, in reference to his experiments, "that he was continuing them up here," indicating up Tremont street, did you then know whether John A. Cummings, dentist, had an office in Boston, and where it was? and if so, state where it then was.

Ans. I think I had seen his sign, passing down Tremont street, going to Jones, White & McCurdy's.

J. W. BARTLETT.

Deposition of Ambrose Lawrence.

Int. 1. State your name, age, residence, and occupation?

Ans. My name is Ambrose Lawrence; my age is forty-nine; residence, Lowell, Mass.; occupation, that of dentist; have been a practising dentist since 1838.

289 Int. 2. State whether or not you were formerly acquainted with F. A. Bevin; and if yea, state when and where you first became acquainted with him.

Ans. Yes. I first became acquainted with him about 1856, I think, at the office of Dr. John A. Cummings, of Boston.

Int. 3. State whether or not you have had knowledge of the use of vulcanized or hard rubber as a base for artificial teeth; and if yea, state when and of whom such knowledge was first obtained.

Ans. My first knowledge of it as a base for artificial teeth was, I think, about 1856, seeing it in the hands and mouth of Mr. Bevin, who was at the time in the office of Dr. Cummings—this was the time referred to in my last answer. He was visiting at his office. He was not in his employ that I know of.

Int. 4. Examine "Exhibit D," and state whether the set which you saw in the hands of Bevin, as testified in your last answer, corresponded substantially to "Exhibit D," or different therefrom, and in what particulars.

Ans. That set was made on the same principle as "Exhibit D;" but whether they were single, plain teeth, as they are termed, or teeth with gums like this sample marked "D," I do not now recollect. The case he shew me was of darker colored rubber.

Int. 5. State whether or not you had any conversation with Bevin, either at the interview mentioned by you, or at any other interview, on the subject of introducing the use of hard rubber as a base for artificial teeth into your own practice.

Ans. We had some conversation in regard to its merits as a base at the first interview, Bevin being sanguine as to its merits, while I was not. A short time after this he visited me at my office at Lowell, and tried to induce me to adopt it in my practice at that time, but I declined. Some time after, within a few weeks or months at most, I met him again in Dr. Cummings' office. When I went into the office, Bevin was in the front office; shortly after Cummings came in. Bevin wished me to adopt his mode of mounting teeth at that time. Cummings in-

quired of me why "I didn't go into it." My reply was, "Why
290 don't you?" The purport of his answer was that he would wait awhile. He gave me to understand that he was a little afraid of it, or its merits. That's about all I know about it.

Int. 6. State whether or not, at the interview between Cummings, Bevin, and yourself, referred to in your last answer, anything was said either by Cummings or Bevin relative to the invention of mounting artificial teeth upon hard rubber.

Ans. I don't recollect the particular conversation, but I supposed at the time (objected to) that it was Bevin's invention. I mean to say that I gathered this from the conversation, or was led to this inference by the conversation between Cummings, Bevin, and myself.

Int. 7. State whether or not, at this interview, Cummings made any claim to be the inventor of the method of mounting artificial teeth upon hard rubber.

Ans. He made no such claim at any interview with me.

Int. 8. Have you or not mounted teeth upon hard rubber in the practice of your profession as a dentist; and if so, when did you commence the practice?

Ans. I have. I commenced in February, 1859.

Int. 9. Do you, in any case, form the plate and gums, in which the teeth are inserted, in one piece of hard rubber or vulcanite?

Ans. I should say no to that. I hesitate a little on account of the professional use of the word "gum." We mean by gum or gums to teeth, that part of tooth, or section of teeth, and made from the same material extending beyond the neck of the tooth or teeth, and colored to resemble the natural gums, as shown by "Exhibit D," in the part between the teeth and the rubber. In this, now, (referring now to Exhibit R, W. W., Jr.,") the rubber is made, in some degree, to take the place of gum, so far as filling out or giving prominence to the lips, but would answer no other purpose as a gum, on account of color, and is never called a gum in professional language.

AMBROSE LAWRENCE.

291 (Copy.)

EXHIBIT A, W. W., JR.

Articles of agreement between parties, to wit: F. A. Bevin, of New Haven, Conn., of the first part, and Willard Ball, of Walpole, N. H., of the second part, in respect to an office-right for the applying of vulcanized rubber to dental plates and teeth, made this thirteenth day of February, one thousand eight hundred and fifty-seven.

Now, whereas, said F. A. Bevin has brought this applying of vulcanized rubber to dental purposes to its present state of perfection, and is in part owner with Charles Goodyear in said improvement, he, in consideration of one hundred dollars, to be paid to him of the first part, by said Willard Ball, of N. H., of the second part, doth convey to him of the second part, an office-right, that is, that he may apply vulcanized rubber to dental plates and teeth in his business and profession.

Furthermore, said Ball is to have five cases vulcanized at five dollars per case. In case he takes an office-right, three dollars per case of the above shall be deducted from the price of the said office-right.

F. A. BEVIN.
WILLARD BALL.

EXHIBIT B, W. W., JR.

This agreement, made this 13th day of February, 1857, by and between Willard Ball, of Walpole, N. H., of the one part, and F. A. Bevin, of the other part, witnesseth:

That the said F. A. Bevin, for the consideration of one hundred dollars, conveys to said Willard Ball one office-right, that is to say, that he may apply the vulcanized India-rubber compound to dental plates and teeth, in his business and profession; and said Bevin will give all necessary instructions in carrying out the arrangement be-
292 tween the parties. He agrees that the said Willard Ball shall have the advantage of all the improvements made by the proprietor upon the material.

The said parties shall buy all their stock of the said Bevin, or his agent. Said Bevin derives his right from Charles Goodyear, the original patentee of the vulcanized hard rubber compound.

In consideration whereof, the said Willard Ball agrees to pay the said Bevin the sum of one hundred dollars; to wit, fifty dollars in cash, and his note for fifty dollars, payable in six months from this date.

He agrees not to give instructions to any person in this process who is not intending to purchase an office-right from said Bevin, or his agent, on penalty of forfeiting this office right; he agrees to conform justly and fairly to the scale of prices agreed upon.

In witness whereof the parties have hereunto set their hands and seals.

F. A. BEVIN. [L. S.]
WILLARD BALL. [L. S.]

Witness:
ROBERT MCGONEGAL.
FRANCIS C. MCGONEGAL.

A true copy of the original. Attest:
HARVEY BALL, *Town Clerk.*

Recorded by me this 2d day of April, 1859.
HARVEY BALL, *Town Clerk.*

I, Harvey Ball, of Walpole, Cheshire County, State of New Hampshire, depose and say: that, on the second day of April, 1859, I was the town clerk of said town of Walpole; that an original instrument was then presented to me by Willard Ball, of said Walpole, to be recorded on the town books, and I myself recorded the same accordingly. I was acquainted with his signature to said instrument, which was genu-
293 ine, and he himself handed me the paper for record. The foregoing is a true copy of the said record of said instrument then made by me, which I have no doubt was a true copy of the original instrument.

HARVEY BALL.

STATE OF NEW HAMPSHIRE, *Cheshire, ss:*

APRIL 15, 1865.

Then personally appeared Harvey Ball, who is well known to me, and made oath that the above affidavit by him subscribed, is true.

Before me,

FREDERICK VOSE,
Justice of the Peace.

(Copy.)

EXHIBIT G, W. W., JR.

Articles of agreement made this first day of December, one thousand eight hundred and fifty-six, between F. A. Bevin, of New Haven, Conn., of the first part, and I. A. Salmon, of Boston, and Geo. R. Whitney, of No. B., of the second part, in regard to carrying on the business of vulcanizing rubber for dental purposes, which improvement said F. A. B. has brought to the present state of perfection, and is joint owner with Goodyear in said improvement.

Now, whereas, in consideration of the sum of $50.0, in cash, and other good and sufficient considerations paid to said F. A. B., of the first part, by I. A. S. and Geo. R. W., of the second part, F. A. B. furnishing heater for vulcan, and the right to vulcanize rubber for dental purposes, to the amount of one hundred.

Said parties have formed themselves into a joint stock company for the purpose of vulcanizing rubber as aforesaid, and are owners
294 in the stock and also in the profits of the business, after paying all expenses of running said heater, as follows: F. A. B. to the amount of one-half, and I. A. S. and Geo. R. W. to the amount of one-fourth each.

The price of vulcanizing cases to be $2 00, to be paid to the treasurer of said company, and said treasurer to keep a strict account of all moneys paid into said treasury, and all expenses of said business, and to pay all necessary expenses out of the funds of the company.

(Signed) F. A. BEVIN.

EXHIBIT S, W. W., JR.

[Copy of the article on page 477–'9 of the July number of the American Journal of Dental Science for 1856, referred to in the answer to the third direct interrogatory in the deposition of Nathan C. Keep, made by me. W. W., jr.]

INDIA-RUBBER BASE FOR ARTIFICIAL TEETH.—In a previous number of the Journal we took occasion to notice the application of vulcanized India-rubber as a base for artificial teeth; a few weeks since we received the following communication from Dr. Mallet, dentist, of Hartford, Conn., giving the result of a series of experiments in the use of this article, which cannot fail to be interesting to our readers; therefore, rather than permit the communication to lay over until our next issue, we introduce it into the editorial department of the present number, the portion assigned to original communications having been closed previously to the receipt of the article.—Eds.

INDIA-RUBBER TEETH.—By Dr. Samuel Mallett, dentist. Some fugitive notices have from time to time appeared in the public prints, regarding the use of hard rubber for dental purposes, but I believe no
295 one has described anything, of a practical nature, respecting this article for the purpose named. The idea has been in many minds that it would be accomplished, but how the thing could be done, has been the question.

The first piece of work of the kind which in any manner resembled a set of teeth, was an upper set; plate, teeth, and gums, all of hard rubber, and in one piece, being made by Mr. F. A. Bevins, in the employ

of Mr. Goodyear, by moulding an artificial set of teeth in plaster of Paris, and filling the whole with sheet-rubber, prepared for such purposes. This was then subjected to the influence of steam, and in the process of vulcanizing, a kind of fusion of the rubber took place, which caused every portion of the mould to be filled, making an exact copy of the case of teeth which was used. But notwithstanding the adaptation to the mouth was most perfect, it would not answer for practical purposes—the color would condemn it; and, besides, the teeth were not sufficiently dense to endure the friction caused by mastication. But subsequent experiments warrant a hope this difficulty will yet be overcome.

About this time Mr. Goodyear, now in France, sent to this country a partial set of teeth, the plate-gums and clasps being composed of rubber, in connection with plain mineral teeth, inserted in the rubber, somewhat like gutta-percha work.

About this time, with the aid of Mr. Bevins, an experienced workman in rubber, I made a case of teeth in the same manner. But we were satisfied that this mode of doing the work would not go into very general use unless the color of the gum could be made more closely to resemble nature, it being about that of mahogany. Many experiments were made to improve the color of the rubber, but they were unsuccessful in bringing it to a life resemblance; we then hit upon a plan of using single gum teeth, and soon a denture was produced which has been worn since that time with much satisfaction.

The durability of the work has surprised me; although the ordinary teeth were used with no attachments but such as were made by the pins and the angles of the teeth, yet I do not see that they are more
296 liable to loosen from the case than they are when made in the ordinary way of inserting them on gold plate; this is more than I at first expected of the work. The rubber has peculiar qualities. It has wonderful tenacity when it is under the action of steam; it expands and seeks vent, forcing itself between the particles lying on the surface of the object with which it comes in contact. To show the strength of it I will name, that I took the incisor teeth of a case between my thumb and fingers, and attempted to break them from their beds, (these were gum teeth,) but could not without breaking the plate in another place first. I am now using block teeth for this purpose, and I am satisfied that with the plan of making them which I have designed for this work, they will possess a degree of beauty and strength which cannot be excelled. The work is performed in the following manner: a plate is fitted to the mouth in the ordinary way, and if it is desirable, to avoid swaging, gutta-percha may be used for the purpose of fitting.

The antagonising model having been taken, and the teeth fitted, as for other work; with the plate and teeth, by means of wax, a perfect model is made, in outline of what it is desired the case should be when completed. It is important that this should be exact. A wax rim is made, enclosing the edges of the teeth or blocks on the labial and lingual sides, to represent the band and backings of the teeth.

The model is now to be moulded, the mould being made in sections, so as to fit together very accurately; the teeth are then removed from the model, and placed in their respective sockets, in the moulds, the rubber being placed in the mould in sufficient quantity to fill it when vulcanized.

The mould being securely enveloped, it is submitted to the process of vulcanizing, by confining it in a steam chamber for several hours; this done the work is ready to be removed from the mould, and polished.

Teeth should be made expressly for this work. There is no difficulty

in making single teeth or blocks which shall be as strong as de-
297 sirable. I have the block made with two or more excavations, about one-eighth of an inch deep on the lingual side, with projections, and in these excavations are pins, sufficiently long to allow them to be bent into any desirable shape. The block is also made thicker on this side than for ordinary work, tapered to nearly an edge, which is beveled, so that an arch is formed, conforming in this particular to nature.

In the ends of the blocks where they join together, large corresponding holes are made, into which the rubber flows, making connecting pins of great strength; the rubber also flows around the edges of the blocks, forming the rim on the labial and lingual sides, and filling the notches even with the block, so that when the case is finished, there is a uniform surface of rubber and porcelain, differing in appearance only in color; in other respects the blocks do not differ from those which are ordinarily made.

There is a marked difference between the adaptation of metal and hard rubber for plates, and that very much in favor of the latter article.

There seems to be more congeniality between the animal system and rubber, than is found between it and the various metals used in dentistry. The slight elasticity which it possesses, is very agreeable, so different from the rigidity of metallic plates, that it cannot fail to be popular.

EXHIBIT T, W. W., JR.

[Copy of the paragraph on page 83-'4 of the October number of the American Journal of Dental Science for 1853, referred to in the answer to third direct interrogatory in deposition of Nathan C. Keep—made by me, W. W., Jr.]

"Before leaving this part of my subject, I would observe that several attempts have been made to line the gold plates with soft material, to relieve the gums from hard pressure. The last that has come
298 under my notice is Mr. Saunders' plan of using India-rubber. After moulding this substance to the inner surface of the plate which he had previously coated with silver he caused it to be vulcanized; the sulphur used in this process entered into combination with the silver and formed sulphate of silver, which fixed the India-rubber to the plate. Mr. Saunders does not however, use this plan now, as it was found that the saliva dissolved the sulphate of silver and the caoutchouc became detached. This however was a step in the right path; and, by showing us what may be done, furnishes us with a good guide in our future experiments."

Deposition of Samuel Mallett.

Int. 1. State your name, age, residence, and occupation.

Ans. My name is Samuel Mallett; forty-eight years of age; reside in New Haven, Conn.; and am by occupation a dentist.

Int. 2. How long have you been engaged in the practice of dentistry?

Ans. About twenty years.

Int. 3. State whether or not you have at any time made experiments in the use of vulcanized or hard rubber as a base for artificial teeth;

and, if yea, state when such experiments were first made; the place where, and all the circumstances connected therewith.

Ans. I have made such experiments; I first commenced in the summer or autumn of 1854, at my office and laboratory, No. 416 Chapel street, in New Haven. The work was taken away to be vulcanized, as I had no means of vulcanizing it there at the time. I proceeded on with the experiments from time to time with a man by the name of F. A. Bevin. Bevin first brought a plate to me which he had made; a hard-rubber plate; a duplicate of gold plate, which he was wearing. This hard-rubber plate had teeth of hard rubber attached. It was
299 formed in one piece of hard rubber. Its color was black. Then Bevin and myself experimented for the purpose of seeing if we couldn't make something practical of it. We experimented in the gum—hard-rubber gum, and endeavored to get a desired color of it, and we attained the color which is now used. I don't think there has been any improvement upon it from that day to this. The color which is now used is not as good, as a general thing, as the color we attained. When we commenced experiments the understanding was that we were to experiment together and share the advantages whatever they might be. Afterwards, Bevin being poor, and unable to give his time, I employed him, and paid him some wages. It was some time after we had been together that I paid him wages. I can't state the precise time. He was not at my place straight along, but was there off and on. When I paid him wages it was at the rate of about a dollar a day. I can't give the precise date, or when we attained the desired color, but it was in the early part of the experiments.

Int. 4. When did this arrangement with Bevin, of which you have spoken, terminate?

Ans. There was no formal arrangement—no record—it was but a verbal agreement. There was no formal termination, we seemed to have worked up the matter and got through with it. I wrote an article for the American Journal of Dental Science, which was published in the July number of that journal for 1856, at page 477, and entitled "India-rubber teeth." Our arrangement must have terminated in the spring or summer *summer* of that year, 1856.

Int. 5. State whether or not sets of teeth mounted upon hard rubber plate, were taken from your office by Bevin, at any time between 1854, when he commenced with you, and the spring or summer of 1856, when he left?

Ans. Yes, sir; he did. He took several cases. I don't know the exact number.

Int. 6. Can you state when any of them were taken, and the use that was made of them by him?

Ans. Some of them were taken in the spring of 1855. I understood he took them to Boston.

300 Int. 7. State whether or not the teeth in the sets last spoken of by you were furnished by you to Bevin, and paid for by him?

Ans. Yes, sir; I furnished him the teeth. He paid me for them. He paid me for some. I don't know but he had teeth which he did not pay for. I furnished him one or two sets for himself. He must have had several sets in the whole.

Int. 8. By whom was the expense of the materials used in the experiments of which you have spoken, paid?

Ans. I paid for most of them; there were probably some small matters that he paid for himself.

Int. 9. Have you in your possession a set of teeth mounted on hard

rubber as early as the year 1856? If yea, please exhibit it, that it may be marked by the commissioner as an exhibit in this case; and state as definitely as you are able the time when it was made.

Ans. I have, and produce it to be marked. (It is marked by the commissioner "S, C. R. I.") This was made in the latter part of the year 1856. It was not the first of my making sets; it was then in practical use.

Int. 10. State, if you know, whether the rubber used in "Exhibit S" was colored at your laboratory, or whether it was colored when purchased by you.

Ans. The rubber we were then using was made after Bevin's formula, at the rubber factory in this city.

Int. 11. State whether or not the formula spoken of in your last answer, was brought by Bevin when he came to your office, in 1854, or whether it was the result of the experiments made in your office, of which you have spoken, or whether it was obtained in some other manner?

Ans. Bevin had no knowledge of coloring when he came to me. It was the result of our experiments. I should state, however, perhaps, that the coloring was more particularly the result of Bevin's manipulations, though I counselled and advised with him. The leading thing we considered to be the combination of the mineral teeth with the hard rubber. This was considered a great achievement, though the color was very important.

301 Cross-examination:

Cross-int. 1. Are you a member of the Dental Protective Union?

Ans. I suppose I am, though I believe I have never signed any writing making me a member.

Cross-int. 2. State, as nearly as you can, at what time Bevin first commenced experiments on hard-rubber plates with you in New Haven.

Ans. It was in the summer or fall of 1854.

Cross-int. 3. Do you think that your experiments resulted in the production of a plate of hard rubber with mineral teeth attached, and the rubber of a good color, as early as April, 1855?

Ans. Yes, sir.

Cross-int. 4. Was the plate so made as good in color as the plate you have produced, marked "S"?

Ans. About as good.

Cross-int. 5. Was any plate so made as early as April, 1855, as well done in respect to the setting of the teeth and the vulcanizing of the work, as that specimen is which you have produced, marked "S"?

Ans. As good for practical use—for practical purposes, but no such fine work as that.

Cross-int. 6. You say that the coloring was more particularly the result of Bevin's manipulation; to what part of the work was your own attention more particularly given?

Ans. I paid attention to the coloring; that is, I helped contrive and study out the thing with Bevin, but he put the materials together and did the work. The work in the mouth, the combining of the mineral teeth with the rubber was more particularly my work. The contrivance of combining the hard-rubber plate with the mineral teeth we regarded as mutual. I couldn't say which struck upon the idea first. The arrangement of the teeth as they were to be in the plate was done by myself. He knew nothing about dentistry proper. My work included

the taking the impression from the mouth and making the mould, and setting up the teeth in it, ready for the introduction of the rubber. The whole rubber work, including the vulcanizing, was done by Bevin.

302 Cross-int. 7. If I understand you correctly, you and Bevin made one or two sets of hard rubber with mineral teeth, for his own use?

Ans. Yes, sir; we did.

Cross-int. 8. Can you state at about what time this plate or plates were so made?

Ans. It was in the early part of 1855. I think it was the first practical case we made. He wore that case in his own mouth with more satisfaction than his gold one. He wore it some time, and then we made another.

Cross-int. 9. Was this second one made as early as the summer or fall of 1855?

Ans. Yes, sir; I should think it was.

Cross-int. 10. Did you make or assist in making more than these two plates for Bevin's own use?

Ans. Those two I recollect distinctly. There might have been another case made for him, but I hardly think so.

Cross-int. 11. What was the value at that time, according to the then customary charges of New Haven dentists, of the work you so did on each of these plates or sets for Mr. Bevin?

Ans. There were no dentists in New Haven doing that kind of work at that time.

Cross-int. 12. What was the value of the work you so did on each of these sets or cases for Mr. Bevin?

Ans. I didn't make any charge for the work on them, as far as I recollect.

Cross-int. 13. What was your work on each of them worth—I mean including the price of the teeth and all the work and supervision that you gave in the case of each of these sets for Mr. Bevin?

Ans. It is difficult to get at the value of such work at that time. We had no machinery as we have now. We labored under disadvantages.

Cross-int. 14. Was the value of the teeth and of your work in the two sets taken together which you and Mr. Bevin made for him in 1855, more or less than thirty dollars?

Ans. The first set were made in the midst of experiments, and we didn't take any account of the expense, except, possibly, Bevin may have paid me for the teeth. The work inquired after could be

303 done now for less than thirty dollars; that is, somebody could be hired to do it. The work and teeth at that time were worth more than thirty dollars. By the work I mean my work.

Cross-int. 15. How much more, as near as you can judge?

Ans. The first set was an experimental set, and I can't say what I could be hired to go through those experiments for. It would take a good deal of money. The second set, I could have done the work and furnished the teeth for *for* thirty dollars.

Cross-int. 16. You say Bevin might have paid you for the teeth, or some of them; did he not pay you for the work, or any part of it?

Ans. No, sir.

Cross-int. 17. Did you ever render him any account for the work, or any part of it?

Ans. No, sir; not to my knowledge.

Cross-int. 18. Did you ever render anybody any account for your work on these sets for Mr. Bevin, or any part of it?

Ans. Not to my knowledge.

Cross-int. 19. Why do you say not to your knowledge; do you not know whether you were doing this work at anybody else's charge or not?

Ans. I was not doing it at anybody else's charge.

Cross-int. 20. Please look at the account now produced, and marked by the commissioner "T 1," and say in whose handwriting that is.

Ans. I should say it is my handwriting.

(The exhibit is as follows:)

1855. *Doct. Cummings, Boston, to Sam'l Mallett Dr.*

To am't of work and teeth for Mr. Bevin.....	$27 99
Cr. by cash.....	24 50
	$3 49

Cross-int. 21. Now please look at the receipt now produced, and
304 marked by the commissioner "T 2," and say in whose handwriting that is.

Ans. I think it is my handwriting.

(The exhibit is as follows:

Rec'd, New Haven, Sept. 15, 1865, of Dr. Cummings, Boston, per Mr. Bevin, twenty (20) dollars on account. Sam'l Mallett.)

Cross-int. 22. When Mr. Bevin first came to you, in the summer or fall of 1854, did he bring any letter of introduction to you?

Ans. I have no knowledge of any.

Cross-int. 23. Had you known him previously?

Ans. Yes, sir; he had been a member of the same church with me in New Haven.

Direct examination resumed:

Int. 12. If you have any knowledge of the work or teeth, mentioned in bill, marked Exhibit "T 1," state what your knowledge is.

Ans. I have a recollection of teeth being made which Mr. Bevin said he was going to take to Boston. I don't recollect anything more definite than that about it.

Int. 13. State whether or not you are acquainted with John A. Cummings, dentist, of Boston.

Ans. I am not.

Int. 14. State whether or not you have any knowledge of the reason or consideration for the receipt, marked "T 2," other than what is expressed on the receipt itself.

Ans. I have not.

Int. 15. When, in your answer, you speak of two sets of teeth made for Bevin's own use, do you mean the sets made for Bevin which he sent to Boston; or were those sent to Boston other and different sets from these made for Bevin's own use?

Ans. Those sent to Boston were not the same as those made for his own mouth.

(Counsel for complainants seasonably objected to all testimony of the witness giving statements of Bevin.)

And further deponent saith not.

SAM'L MALLETT.

305 *Deposition of Augustus B. Smith.*

Int. 1. What is your name, age, residence, and occupation?

Ans. My name is Augustus B. Smith; my age is thirty-eight; by profession, a dentist; and reside at 102 Howe street, in New Haven, Connecticut.

Int. 2. State whether or not you were engaged in the business of dentistry in the years 1854 and 1855? and if yea, state when you were so engaged?

Ans. I was so engaged in the years 1854 and 1855, with Dr. Samuel Mallett, at No 53 Chapel street, New Haven, Connecticut. The present number is No. 416.

Int. 3. State whether or not F. A. Bevin was, during any part of said years, at work at Dr. Mallett's; and if so, when did he commence work there, and what was done by him?

Ans. I cannot positively say at what date he came to Dr. Mallett's, nor when he left. He was experimenting in hard-rubber material for artificial teeth, under Dr. Mallett's employment.

Int. 4. State what was done by Bevin and Mallett in the experiments that were made at Dr. Mallett's.

Ans. When he came there he brought an India-rubber plate and teeth, all in one piece—the material was as black as ink—and I understood him to say that that was as far as he could go. Dr. Mallett then selected mineral teeth, which I fitted up and moulded—he (Bevin) making the rubber base or plate. This is the first teeth that were made on that plan. This rubber was black also, I think. Experiments were made regarding the color. The color was the same then when perfected that it is now. I believe there has been no improvement since.

Int. 5. State whether or not Dr. Mallett took part in the experiments that were made relating to color and made suggestions in reference thereto.

Ans. I remember nothing particular about that.

(The complainants' counsel seasonably objected to all testimony of the witness giving any statement of Bevin.)

And further deponent saith not.

AUGUSTUS B. SMITH.

306 *Deposition of Robert McGonegal.*

Int. 1. What is your name, age, residence, and occupation?

Ans. Robert McGonegal; forty-three years of age; reside in New York City, and am a clergyman.

Int. 2. State whether or not you were formerly acquainted with F. A. Bevin, and whether you are in any way connected with his family; and if so, in what way.

Ans. His oldest daughter is my wife; I have been acquainted with him ever since 1844.

Int. 3. Is Mr. Bevin living, and if not, when did he die?

Ans. He is not living; he died six years since, in South Boston.

Int. 4. Do you know whether or not he left papers, books, or letters, relating to his business; and if so, do you know in whose possession such letters, books, and papers now are?

Ans. There were books, papers, and letters. I think they were committed to his eldest son, William. I don't know who has them now.

Int. 5. Was there an administrator or an executor of his estate; and if so, who exercised the trust?

Ans. I have known of no one in that capacity, except it be the eldest son.

Int. 6. State whether or not you had knowledge of F. A. Bevin's business, from 1844 to the time of his death; and if so, state what his occupations were during that period, and where he was employed.

Ans. I had no intimate knowledge, though a general acquaintance with what he was doing. When I first knew him he was in charge of a thread manufactory in the village of Berlin, Conn., and next in the valley of the Naugatuck, in charge of a cotton manufactory. That was in 1849. From thence he became connected with Goodyear & Deforest, in New Haven, in the rubber business. He was employed under the Goodyear patent as an inventor; that is, for his ability as acquainted with the ingredients. He was engaged for several years in ex-
307 perimenting with Goodyear, in New Haven; in this city; in Europe; and after his return from Europe he was in Boston, mostly, to the time of his death.

Int. 7. State whether or not you have knowledge of the use of vulcanized or hard rubber as a base for artificial mineral teeth; and if so, whether you have any knowledge of such a use of hard rubber by F. A. Bevin.

Ans. I suppose what he told me would not be proper evidence.

(Counsel for defendant says that the question asks for information of your own personal knowledge.)

On the return of Mr. Bevin from Europe, which I think was in 1854, or 1855, Mr. Bevin showed a set of teeth upon the rubber basis, and remarked (objected to) that he had worn it two years, and that it was proof of his interest in the invention of rubber as a basis; that he had an agreement with Mr. Goodyear in writing that if that were perfected under his efforts, he should receive one-fourth its value. The next that I knew of the labors or business of Mr. Bevin, he was in Boston, engaged in experimenting mostly, if not wholly, in the hard rubber. At this time I first knew of his connection with Dr. Cummings. This was, I think, in 1857. He was engaged, certainly, in the year 1857, in vulcanizing sets of teeth. He had a shop in Cambridgeport. Dentists from different parts of the country sent in to him to do that kind of work for them. His son, William, occasionally worked with him.. Among others, Dr. Cummings had work done there.

Int. 8. State, if you know, whether Mr. Bevin vulcanized hard-rubber teeth or palates for yourself or acquaintances; and if so, were they satisfactory, and were they paid for?

Ans. None of my immediate relatives wore this kind of work. Several acquaintances wore this kind of work done by him, and they were paid for, and the general impression in the family, as well as myself, was that they were daily gaining ground, as compared with silver and gold basis.

Int. 9. Was the hard set shown to you by Bevin the first you had ever seen made of hard rubber?

Ans. They were.

Int. 10. Describe that set so far as you can, as to color, and
308 whether the teeth were mineral or hard rubber, in whole or in part?

Ans. The roof of the set was hard rubber. The color was a reddish hue. The teeth were mineral, put on singly, with gold rivets. It was a matter of doubt in his own mind whether the rivets were of any special benefit, though he thought they made the work firmer. There was

another set he wore, made in Cambridgeport, in which the teeth were put on in sections—a much better set.

Int. 11. State whether you have examined any written contract or contracts between Mr. Bevin and Mr. Charles Goodyear, deceased, or John A. Cummings, or any other person, relative to the use of hard rubber or artificial teeth, or palates.

Ans. I saw a contract in the handwriting of Charles Goodyear, by which Mr. Bevin had secured to him one-fourth of the patent, should he perfect it. I have seen and examined a contract between Mr. Bevin and Dr. Cummings, of Boston. I once saw a contract with Mr. Salmon, of Boston, a dentist.

(So much of the foregoing answer as states the import of the alleged contract between Goodyear and Bevin, was taken after seasonable objection by counsel for complainants.)

Int. 12. Have you the possession or control of any of said contracts; if not, who has, if you know?

Ans. I have no possession or control of them. I do not know who has.

Int. 13. State whether or not you have knowledge of the corporation, plaintiff in this cause, and also whether or not you are acquainted with Mr. Bacon, the treasurer of said corporation.

Ans. I have none. I have seen Mr. Bacon, once to know him—that is, by introduction.

Int. 14. When were you introduced to Mr. Bacon?

Ans. A few months ago. I can't fix the date exactly. It must have been last spring.

Int. 15. State whether or not, at that interview, or at any subsequent interview, or by correspondence, either with him or any other person, a transfer of stock in the corporation, plaintiff in this cause, to
309 yourself, or wife, or to any member of the family of F. A. Bevin, or to any person in trust or for the use or benefit of yourself, or wife, or any member of family of said Bevin, has been the subject of conversation, negotiation, or correspondence.

Ans. I have no personal knowledge of such transfer. I had nothing to do with anything of the kind. I have been very busy in my own profession, and I have always had very little to do with anything else. I have seen nothing in writing from Mr. Bacon on that subject that I remember, or from any one else. I was introduced to Mr. Bacon on the occasion referred to, and immediately passed out of the room.

Int. 16. State where the interview with Mr. Bacon took place; who introduced you to Mr. Bacon, and what other persons were present, if any?

Ans. At 16 Beech street, New York, my residence. William A. Bevin introduced me. I do not recollect whether any other person was present. I was very busy, and can't tell you anything further.

Int 17. State whether or not Mr. Bacon has informed you by word or letter, that stock in plaintiff corporation, had been, or might be, or would be transferred to yourself, or any member of the family of F. A. Bevin?

Ans. No such information has been received by me.

Int. 18. State whether or not you have any interest, direct or indirect, in the plaintiff corporation, or in the result of this suit?

Ans. I can't say that I have, and I can't say that I havn't.

Int. 10. What circumstance or facts leads you to say, "I can't say that I havn't,' in your last answer?

Ans. Well, I can't answer the question. If I were in possession of

facts, I would state them of course. I have heard that possibly my wife might have an interest in that company. What, I don't know, or how much, I don't know.

Cross-examination:

Cross-int. 20. When did F. A. Bevin go to Europe, and when
310 did he return? Please reflect and give those dates as nearly as you can.

Ans. He went in 1854, and I think he returned the same year. I think he was not gone over one year.

Cross-int. 21. Where did Mr. Bevin show that set of teeth you spoke of in your direct examination, as having a reddish rubber base, and mineral teeth?

Ans. I think it was on Martha's Vineyard, at West Tisbury.

Cross-int. 22. Were you there at the time?

Ans. I was.

Cross-int. 23. How long did you remain there?

Ans. My entire residence was two years. This was near the close of the period.

Cross-int. 24. Did Mr. Bevin reside there at the time he showed this set? If not, what was the occasion of his being there?

Ans. He was there on a visit. He then resided at New Haven.

Cross-int. 25. How long did his visit last?

Ans. Two or three days.

Cross-int. 26. Did he make any other visit there, during your residence there?

Ans. None other.

Cross-int. 27. When did you go to live at West Tisbury, and when did you move away?

Ans. I went there in 1853, and moved away in 1855.

Cross-int. 28. What time in 1855?

Ans. In the month of April.

(Objected to de bene questions on cross-examination.)

Cross-int. 29. (De bene esse.) Do you know that it was the set of teeth which Bevin showed in Tisbury, and not the set he afterwards wore, made in Cambridgeport, in regard to which he made the remark that he had worn it two years; if so, how do you know that it was the former, and not the latter set?

Ans. I understood that it was not the same set. When he was in Tisbury he had the teeth, and made the remark; that was before he went to Europe.

Cross-int. 30. (De bene esse.) Did anybody else hear this remark to your knowledge beside yourself?

Ans. My wife heard the remark.

Cross-int. 31. Do you remember the date of the agreement be-
311 tween Mr. Goodyear and Mr. Bevin, which you say you saw?

Ans. I do not.

Cross-int. 32. (De bene esse.) Are you not mistaken in the expression you gave as having been used by Bevin, when he showed that set of teeth at West Tisbury; did he not say he had worn them two months instead of two years?

Ans. Two years; I am not mistaken.

Direct examination resumed:

Int. 33. Examine the statement relating to the time when Mr. Bevin showed a set of teeth on a rubber basis, contained in your answer to the seventh direct interrogatory, and also the concluding part of your

answer to the twenty-ninth cross-interrogatory, and make such statement thereon as you see fit?

Ans. I shall be obliged, to the best of my recollection, to put the expression "He had worn it two years" to that set which he showed before he went to Europe. And there is another in connection with that; the set was vulcanized in New Haven, so Mr. Bevin said.

Cross-examination resumed:

Cross-int. 34. (De bene esse.) Did he mention the name of any gentleman in New Haven who had been associated with him in the preparation of that set of teeth which he showed you at Tisbury?

(Objected to.)

Ans. He said that a man by the name of Andrews did the baking; himself did the preparing of the ingredients. (Answer objected to by defendant's counsel.)

Cross-int. 35. (De bene esse.) Did he mention the name of any dentist in New Haven who had done any work about that set of teeth?

(Objected to.)

Ans. I don't remember that.

Cross-int. 36. (De bene esse.) You said in answer to the seventh direct interrogatory, that Mr. Bevin showed you a set of teeth which he said he had worn two years, on his return from Europe in 1854 or '55; did you now wish to change that answer?

312 Ans. That is changed. I said before, that the expression, "He had worn it two years," applied to the set he showed in Tisbury. I wish to add, by way of explanation, that the set Bevin showed me in Tisbury, and said he had worn two years, he afterwards wore to Europe, and they were repaired and wore back and repaired again and wore until he made another set in Cambridgeport.

Cross-int. 37. (De bene esse.) Did Mr. Bevin go to Europe more than once?

Ans. But once.

Cross-int. 38. You say the visit of Mr. Bevin to you at West Tisbury, was near the close of the period of your residence there; how near was it to the close of your residence?

Ans. Perhaps six months.

ROB'T M'GONEGAL.

Deposition of William A. Bevin.

Int. 1. What is your name, age, residence, and occupation?

Ans. William A. Bevin; 33 years of age; reside at present in New York, and am not engaged in any business at present.

Int. 2. Are you a son of F. A. Bevin?

Ans. Yes, sir.

Int. 3. If your father is not living, please state when and where he died.

Ans. He died in South Boston, in October, 1858.

Int. 4. State, as far as known to you, your father's occupation, from 1848 till the time of his death.

Ans. In 1847 he was engaged in the cotton manufactory business in Berlin, Connecticut. He afterwards went to Naugatuck, Connecticut, in 1848, in the same business. He then engaged with Charles Goodyear, partly in cotton business and partly in India-rubber business, in the way of experiments, at Naugatuck. He then moved from there to New York, and thence to New Haven, where he was again in the em-

ploy of Charles Goodyear, which was in the year 1851, I think. From there he went to Cambridgeport, Massachusetts, in 1857, and died in South Boston.

313 Int. 5. If your father visited Europe any time between 1850 and 1860, state the time when he left this country and when he returned, and his business abroad, if known to you.

Ans. He left the 14th March, 1854, and returned in September, the same year. His business was starting and introducing tissue paper made of a combination of rubber and cotton, and such other experiments as Mr. Goodyear might set him upon.

Int. 6. State whether or not within your knowledge, your father was engaged in the manufacture of hard-rubber plates for artificial teeth, or had in his possession a set of artificial teeth mounted upon hard-rubber plate; and if so, state when he was first so engaged, or had such first set of teeth in his possession.

Ans. The first of his experimenting in hard-rubber teeth was before he went to Franee. I think it was in the latter part of 1852, but I can't state positively that it was in that year, or the extent of his experiments. When he first commenced, he was very secret in regard to it. He had a set previously to his going to Europe, but I can't say how early.

Int. 7. Do you know whether or not your father was, at any time, engaged with John A. Cummings, of Boston, a dentist, in experiments for the manufacture of hard-rubber plates for artificial teeth? and if so, state the time when he was so engaged.

Ans. I don't know whether he had experimented previous to his going to Europe, to any extent. I believe he did some. On his return from Europe in the fall of 1854, they commenced experimenting together a good deal. They continued together, father working for him, till some time in the winter of 1856 or 1857. What I mean to be undeastood is, that they, Cummings and my father, made some experiments previous to his going to Europe.

Int. 8. State whether or not the experiments made by Cummings and your father previous to the visit of your father to Europe, spoken of in your last answer, were made in your presence, or within your personal knowledge.

Ans. They were not made in my presence, unless packing a case or mixing plaster.

314 Int. 9. State whether or not you packed cases, or mixed plaster for experiments made by your father and Cummings, previous to your father's visit to Europe, in 1854; and if so, state where and when such work was so done by you.

Ans. I might have mixed the plaster, but I never packed a case, that I recollect of. This was done at New Haven; I can't state exactly when; it might have been some time in 1854 or 1853, or the year previous.

Int. 10. State whether, at any time, as early as the year 1855, you saw a set of teeth, the teeth and plate being of one piece, and of hard-rubber; and if yea, state when and where you first saw such set.

Ans. I saw two sets in New Haven; I can't give the exact date respecting it; I can't say whether it was the last of 1854, or at what time in 1855.

Int. 11. Who had possession of these two sets, at that time, and what was done with them, if you know?

Ans. A gentleman by the name of Herring gave them to me to send to Dr. Cummings, to Boston.

Int. 12. Who was Herring, and what was his business?

Ans. He was in the employ of Charles Goodyear, experimenting in rubber; his principal business was lithographing.

Int. 13. What did you do with the two sets of teeth Herring gave you?

Ans. Father was in Boston at the time, and I don't know whether I sent them to him, or to Dr. Cummings; they were for Dr. Cummings.

Int. 14. Can you describe the sets of teeth, especially with reference to color?

Ans. They were just the shape of any set of teeth, only they were black. I don't know what color they were finished up. Sometimes a piece of rubber comes out of the plates of one color, and finishes up another color.

Int. 15. State whether or not, at the time you received from Herring the sets of teeth referred to, you had then seen any other set of teeth, either of mineral or other material, mounted on a hard-rubber base.

Ans. I can't speak of my positive knowledge. I might have seen a set.

Int. 16. Have you in your possession any books, papers, or let-
315 ters left by your father in relation to his business?

Ans. I have a few papers, and a few small account-books, in relation to some portion of his business.

Int. 17. Have any of his books, papers, or letters been lost or mislaid since his death, or are they now all in possession?

Ans. I don't know whether they are lost or mislaid. I did not take possession of them till some time after his death.

Int. 18. Is there among the papers in your possession, an agreement in writing between your father and said Cummings?

Ans. There is none.

Int. 19. Is there among said papers an agreement between your father and Charles Goodyear, in relation to the use of hard rubber, or to a division of profits that might arise from any particular use of it?

(Objected to.)

Ans. There is none at the present time. No agreement in my possession.

Int. 20. Do you know whether or not there was such an agreement in writing; and if yea, do you know what has become of the writing?

(Objected to.)

Ans. There was an agreement, but not specifying such things as are specified in the previous question. That agreement was delivered to D. N. Ropes, then agent and acting vice-president of the Hard Rubber Company, by me, in the winter of 1858 and 1859, I think. This was after my father's death.

Int. 21. State whether or not you have ever been engaged in business of vulcanizing rubber as a base for artificial teeth; and if yea, state when you commenced such business, and when and from whom you derived your first knowledge of the same.

Ans. I have. I commenced such business in the last part of the year 1858. I got some knowledge from my father, and some from Dr. I. A. Salmon, and the balance I picked up from where I could get it. I was in Doctor Salmon's office in 1858 and 1859, and along in 1857. I saw my father's experiments. In the summer of 1858, I was in my father's shop.

Int. 22. How long did you continue the business; what was its nature and extent?

316 Ans. I gave it up in July, 1862. When I first took hold of

it in Salmon's office, I vulcanized a few set. In the spring of 1859, I made arrangements with the Hard Rubber Company, whereby they took the control of the whole matter, and employed me as their agent in vulcanizing and granting license, under the Goodyear patent, to set up artificial teeth upon hard-rubber base. I can't give the extent without consulting my books. There were some six or seven dentists who used to send in sets along the first year I was in the business. And after the first year it gradually increased, and I received sets from various New England States, and some from New York State.

Int. 23. Did you advertise your business or take any other means to give information to dentists or the public that you were prepared to vulcanize sets of artificial teeth?

Ans. I advertised in the Vulcanite Journal, a periodical published in New York, as agent of the American Hard Rubber Company.

Int. 24. Can you name any persons to whom, as such agent, you granted licenses, as stated in your answer to the twenty-second interrogatory?

Ans. I can; that is to say, I sold the rights, the licenses were executed by the officers of the company; some of these licenses were Doctors N. C. Keep, Dr. I. J. Wetherbee, Dr. Nolan.

Int. 25. State whether or not your father had been engaged in the business of vulcanizing sets of teeth in the shop taken by you in 1858; and if so, how long a time had he been engaged in the business?

Ans. He never was in the shop.

Int. 26. State whether or not at any time you have had a correspondence or conversation with Dr. John A. Cummings previous to June 7, 1864, in reference to applying for and obtaining a patent for the use of hard rubber as a base for artificial teeth; and if so, state when, and the circumstances of such a correspondence or conversation.

Ans. In the winter of 1858 and 1859, I received a note from him wishing me to call at his office. He stated to me that Mr. Ezra Lincoln said that the patent could be obtained, and he was willing to con-
317 sider me the same as my father. We talked the matter over quite a while, and not knowing at that time what his understandings were with father, and I not having much money, I declined going into any arrangements of the kind. In the spring of 1862 he called to see me again; we had some conversation about the matter, I don't know particularly what was said. He didn't stop but a little while and then went away. A few days after, I called at his office by appointment; we had a little talk about various other matters, and we had a few words of conversation about this. This was the last.

Int. 27. State whether or not at any times Doctor Cummings applied to you for a license from the American Hard Rubber Company.

Ans. He did, in the spring of 1862; I obtained it for him. They made him a present of it.

Int. 28. Are you acquainted with Mr. Bacon, treasurer of the Dental Vulcanite Co.?

Ans. Not very much acquainted with him. Some acquaintance.

Int. 29. Have you had any conversation or correspondence with Mr. Bacon in reference to a transfer of stock in the Dental Vulcanite Co., plaintiff in this cause, either to yourself or any other member of your father's family?

Ans. I have had conversation and correspondence only so far as he acted for Doctor Cummings to transfer to me, as the agent of my father's heirs, stock, which belonged to the heirs, according to the agreement made between Dr. Cummings and my father.

Int. 30. When did the first correspondence on the subject take place, and when the first interview between yourself and Bacon?

Ans. I think the first correspondence was sometime in January last. I am not positive. The first interview was during the same month. The interview took place before the correspondence.

Int. 31. Was the interview accidental, or upon the suggestion of either party? and if upon either party, which?

Ans. It was not accidental, nor was it upon my own seeking. Mr. Bacon sought the interview,

Int. 32. State what was said at the interview by Bacon and by
318 yourself.

Ans. The principal topic of conversation was the patent obtained by Dr. Cummings, and the relation that my father sustained to him. That was the sum and substance of the conversation. I can't remember all that was said.

Int. 33. State whether or not anything was said in reference to infringements of the patent or to suits commenced against infringers.

Ans. There was some conversation respecting that. My impression is, that some suits have been commenced, but I am not positive.

Int. 34. What did Mr. Bacon say in reference to suits commenced or to be commenced?

Ans. Well, I cannot state the details of the conversation. I think he said there had been suits commenced, and counsel employed.

Int. 35. Did he make any statement as to the value of the patent, if its validity should be established; and if so, what statement did he make?

Ans. I cannot state positively anything *what* was said about the value of the patent if it should be sustained, as I knew as much about that point as he did himself.

Int. 36. State whether or not anything was said by Bacon in this conversation in reference to a transfer of stock by the plaintiff corporation to yourself or to any member of your father's family; and if so, what was said?

Ans. There was no conversation had in reference to transfer of stock, only so far as Cummings was indebted to us.

Int. 37. What was this conversation?

Ans. We held a contract signed by Cummings and father, giving us a certain portion of the patent, if one was ever obtained. Our conversation was on the validity of the contract, and whether Cummings would stand by the terms therein stated.

Int. 38. Is that contract now in your possession; and if so, will you now produce it?

Ans. The contract is not in my possession. I delivered it to Mr. Goodwin in this city, who acted as my counsel. He put it in the hands of Mr. Bacon for Dr. Cummings. This was some time in April last, I think.

Int. 39. State whether you or any other member of your father's
319 family are owners of stock in the Dental Vulcanite Co.; and if so, for what amount, when was the same transferred, and for what consideration?

Ans. I am the only member of the family who holds any stock in the concern. I simply hold it as their agent—five hundred shares—I don't know what the par value of the share is. I suppose a hundred dollars. It was transferred at the time I delivered the agreement, and in consideration of that agreement.

Int. 40. Did you have any conversation or correspondence with Dr.

Cummings with reference to the cancelling of the agreement or the transfer of the stock?

Ans. We had no conversation or correspondence with Dr. Cummings, only through Mr. Bacon; we asked him, myself and my brother, to see Dr. Cummings in the matter.

Int. 41. Was the agreement spoken of by you, recorded in the Patent Office?

Ans. Not that I am aware of.

Int. 42. Have you the correspondence or any portion of it between yourself and Bacon in reference to the agreement between your father and Cummings, or the transfer of stock? If so, produce it that it may be made a part of this case.

Ans. I think that the correspondence is in Canada. I may have one or two letters in my trunk here with reference to it, but am not positive.

Int. 43. Will you annex to your deposition all letters in your possession received from Bacon, and also copies of your letters to him if such copies are in your possession or under your control?

Ans. I said I have no copies of any letters I sent to him that I am aware of. Letters received from him I could not get without going to Canada after them; I don't know whether his letters are in existence or not, myself and sister burnt up a great many letters.

Int. 44. Will you obtain and deliver to the examiners, that they may be annexed to your deposition all letters from Bacon in your possession, or under your control, the expense being paid by the defendant in this case?

Ans. All that I can get hold of, I would as lief annex as not.

Int. 45. Have you a copy of the agreement between your father
320 and Doctor John A. Cummings, and will you annex it, or a true copy of the same, to your deposition?

Ans. I have it, and will annex a true copy of it.

Int. 46. State whether you have been in Canada within the last month; and if so, state when you went there, and when you left.

Ans. I left New York three weeks ago to-night; I staid there about seven or eight days, and returned on Monday morning. I went to Greensville, Canada West, where I resided.

Int. 47. State whether or not you were informed at Greensville, that a messenger had called upon your family, with a request from the defendants in this case, for you to come to Boston—or some other place within the jurisdiction of the United States, that your deposition might be taken, and also that the messenger was waiting at Niagara Falls for an answer.

Ans. My sister informed me that a gentleman called there, wishing me to go to Boston, and as I was not there she told me that she would notify him at Niagara Falls, when I arrived. On Monday morning after my arrival, my brother-in-law was going to the depot; she asked him to telegraph to the messenger at the falls, that I was there. He forgot the initials of the man's name, and therefore did not do it.

Int. 48. Look at letter shown to you, and marked by the examiner "Exhibit U," and state whether it was written by yourself or not.

Ans. It was.

Int. 49. State whether or not you have at times, previous to the date of this letter, received letters from Dr. I. A. Salmon in reference to your father's connection with the use of hard rubber as a base for artificial teeth; and if yea, whether you have replied in writing to those letters.

Ans. I received two letters. I replied to one, and my brother replied to the other.

Int. 50. Have you a certificate of stock in the Dental Vulcanite Company; and if yea, will you produce it to the examiner, that he may annex a copy of it to your deposition?

Ans. I have, and will do so.

Int. 51. State if you have put any, and, if any, what papers left by your father in the hands of Mr. Bacon, or any other officer of the Dental Vulcanite Company.

321 Ans. I have placed some papers in his hands. They were letters that my father had received from Dr. Cummings.

Cross-examined:

Cross-int. 52. Was the transfer of the Dental Vulcanite Co. stock to you, a transfer by Dr. Cummings, [of] a part of his own stock in that company?

Ans. It was.

Cross-int. 53. Did you reside in New Haven with your father from 1852 to 1856?

Ans. I did; but did not make it my home all the time. I was away during the week, and there Sundays.

Cross-int. 54. Did you know while you so lived there with him, in what business he was engaged?

Ans. I knew that he was engaged with Mr. Goodyear in the rubber business.

(Question repeated.)

Ans. I did.

Cross-int. 55. Did he talk with you from time to time, while you so lived there, about his various occupations?

Ans. He used to tell me once in a while what experiments he was making.

Cross-int. 56. Did you assist him from time to time in his experiments?

Ans. I did once in a while.

Cross-int. 57. Did you live under the same roof with him?

Ans. When at home, I did.

Cross-int. 58. Do you know, by your father's statements, whether during the period inquired, that is to say, between the years 1852 and 1856, he was employed by Dr. Cummings in experiments for making sets of artifical teeth mounted in hard rubber?

(Counsel for defendant objects.)

Ans. I do.

Cross-int. 59. Did you, during the time, hear your father say who was the inventor of the use of artifical plates of hard rubber, with mineral teeth mounted therein?

(Objected to, as asking for hearsay matters, and as being outside of matters referred to in the examination.)

Ans. He used to speak of Dr. Cummings as the inventor.

Cross int. 60. State, as nearly as you can, when your father's employment by Dr. Cummings commenced.

Ans. I think it was some time in 1853.

322 Cross-int. 61. Previously to such employment by Dr. Cummings, had your father experimented in forming artifical teeth and plates all in one piece of hard rubber?

Ans. I believe he had.

Cross-int. 62. Had such experiments, to your knowledge, resulted in any work of practical value?

(Same objection as to fifty-nine.)

Ans. No, sir.

Cross-int. 63. Had your father, previously to such employment, worn a set, or part of a set, made in that way?

Ans. I don't know, sir, whether he had or not; I cannot speak from positive knowledge.

Cross-int. 64. Had he, previously to such employment, been experimenting upon an India-rubber filling for teeth?

Ans. He had.

Cross-int. 65. You spoke, on your direct examination, of a set of hard-rubber teeth which your father had before he went to Europe in 1854; do you mean hard-rubber teeth and plate, or hard-rubber plate and mineral teeth?

Ans. I can't say positively which it was. If you mean the set I took from Herring, those were hard-rubber plate and teeth.

Cross-int. 66. I mean the set referred to in the answer to the 6th direct interrogatory.

Ans. That, I think, was mineral teeth and hard-rubber plate.

Cross-int. 67. Did you ever hear your father speak of doing anything in regard to hard-rubber plates with mineral teeth attached, or see any such work until after he was employed by Doctor Cummings?

(Objected to.)

Ans. I don't recollect of ever hearing him say, or seeing any, until then.

Cross-int. 68. Was your father, during his employment by Doctor Cummings, accustomed to receive from him sets of teeth in moulds ready for filling with the rubber, and then to fill them, and vulcanize them, and return them to Dr. Cummings at Boston?

(Objected to as before; the same as fifty-nine.)

Ans. He was.

Cross-int. 69. During the year 1855 how many such sets should you think were so received, filled in, vulcanized, and returned?

(Objected to.)

323 Ans. There might have been three or four, and there may have been a larger number.

Cross-int. 70. During such employment of your father by Dr. Cummings, did your father have assistance therein from Dr. Mallett, a dentist in New Haven?

(Objected to.)

Ans. He did.

Cross-int. 71. How were Dr. Mallett's bills paid?

(Objected to.)

Ans. By money, that father received from Cummings.

Cross-int. 72. Did Dr. Mallett at that time claim to have made any invention in regard to hard-rubber plates?

(Objected to.)

Ans. I can't speak from personal knowledge on that point.

Cross-int. 73. Please look at the account now shown you, and say in whose handwriting it is, and what you know about it.

Ans. It is in the handwriting of my sister, Sarah M. Bevin. It was made out as a copy of an account sent to Dr. Cummings. This was made out, and the original sent to him. It was found among my father's papers. The account is annexed, marked "V^1."

Cross-int. 74. Please look at the receipt now shown you, and marked "V^2," and state by whom it is signed.

Ans. It is my father's signature.

Cross-int. 75. Will you look at the letters now produced and shown to you, marked respectively, "V^3," "V^4," "V^5," "V^6," "V^7," "V^8," "V^9," "V^{10}," "V^{11}," "V^{12}," and state in whose handwriting each of them is.

Ans. They are all in father's handwriting, with the exception of "V9," and "V12," and those are in my brother's handwriting.

Cross-int. 76, Was your brother accustomed, during the years 1855 and 1856, to write business letters for your father, under his direction?

Ans. He was.

Cross-int. 77. Is your brother now dead?

Ans. He is.

Cross-int. 78. Please look at the letters now shown to you, marked respectively, "V13," "V14," "V15," "V16," "V17," "V18," "V19," "V20," "V21," "V22," and "V23," each purporting to be signed by or for

324 Dr. Cummings, and state what you know of those letters; in whose handwriting the endorsement of receipt, &c., are, and how they came into the possession of the complainant.

(The introduction of the letters objected to as incompetent, and outside of the direct examination.)

Ans. They were letters that I found among my father's papers, received from Dr. Cummings. The endorsement on the back is in the handwriting of my brother. I transferred them, and gave them to Mr. Bacon. He wished for any correspondence I might have between my father and Dr. Cummings.

Direct resumed:

Int. 79. When did you first see "Exhibit V1," stated to be a copy of an account in your sister's handwriting?

Ans. I think I saw it at the time it was made out; but I can state positively that I saw it last fall.

Int. 80. Is there any original entry in the books of your father corresponding with said account?

Ans. Yes, sir; and I have got some of them in my pocket, some of the original leaves cut out; how they came so, I don't know. They are in my father's and brother's handwriting. I annex six leaves, marked "1," "2," "3," "4," "5," "6." I found them pinned together inside of one of my father's pocket-books, when I took possession of his papers.

Int. 81. How do you know when your father began to work with Cummings?

Ans. By hearing him speak of it.

Int. 82. At what time? Ans. I heard him speak of it at different times, when he was living in New Haven.

Int. 83. Did not your father claim to be jointly concerned with Cummings in the invention of hard-rubber base for artifical teeth.

Ans. I don't think he ever claimed it.

Int. 84. Have you not stated that he did, in answer to inquiry made of you on that subject?

Ans. I have said that he sometimes spoke of it, as kind of an invention between him and Cummings.

WILLIAM A. BEVIN.

325 V 1.

Doct. John A. Cummings to Fred. A. Bevin, Dr.

A. D. 1854.		
Jan.	To compounding teeth filling, &c.....	6 00
Nov.	" experimenting on covering gold and silver plates with rubber.....	2 00
Jan. 1855.	" expenses to Boston and back.....	12 00
	" compounds for filling teeth.....	9 00

Jan. 1855.	To use of machine and compounding		24 00
March, 30.	" expenses to Boston and back		12 00
	" stock for rubber plates and experimenting		25 00
April.	" experimenting on rubber plates for teeth		30 00
May.	" boxes, labels, press, dies, &c., for teeth filling.		35 00
June.	" stock and experiments on rubber plates for teeth		28 00
June 27.	" expenses to Boston and back		12 00
July 1.	" expenses to New York		3 50
August.	stock and experiments on teeth		35 00
Sept.	" expenses to Boston and back		12 00
Sept. 13.	" cash paid Dr. Mallett for work on teeth		20 00
Oct. 18.	" cash paid Dr. Mallett		4 50
Nov. 26.	" expenses to Boston and back		13 00
326 28.	" telegraph and express		75
	" coloring matter, &c., help, &c		1 25
Dec. 3.	" sundries for gutta-percha compounded		1 50
" "	" compounding gutta-percha		4 50
			$283 00
	Deduct whole amount of credit		$179 00
	Balance left due June 4th, 1856		$104 00

A. D. 1855. CONTRA.

Jan.	By cash	6 00
Feb. 6.	By cash	18 00
Mar. 30.	By cash	10 00
Apr.	By cash	10 00
June 27.	By cash	50 00
Aug. 25.	By cash	20 00
Sept. 12.	By cash	10 00
Aug. 25.	By cash	20 00
Oct. 18.	By cash	10 00
Nov. 22.	By cash	5 00
24.	By cash	10 00
26.	By cash	10 00
		179 00

V 2.

$50 00 BOSTON, *July* 3, 1855.

Rec'd of J. A. Cummings on acc. fifty dollars.

F. A. BEVIN.

V 3.

NEW HAVEN, *Decm. 2nd*, '54.

DR. CUMMINGS:

DEAR SIR, your favour is received. I hasen to reply. Do I understan you to say that I shall come on at once, and help you in
327 carring out this experiment, as I did not understand your letter. I shall be happy to do so if you wish.

They are starting the Rubber buisness hear again, so that there would

be a charnce to do some work hear, if you wanted. The filling you know was the main thing with me. An early reply would be desirable.

Vary Truly, yours in hast,

F. A. BEVIN.

N. B. My expencis have been large of late, and I should not want to incur more at this time.

V 4.

NEW HAVEN, *Feb.* 23, '55.

DR. CUMMINGS:

DEAR SIR,—Yours of the 5 was duly received. $18 within the inclosed, vary thankfuly for it. I should have writen befor, but for what you said in your letter, that your lameness had put you back in gitting the work out, but now would have it redy in a few Days and seud by Express, so I have waited till now, Thinking you must be sick, or somthing was the matter I write you as we want to bring it into markit at wonce you know.

Yours, Respectfully,

F. A. BEVIN.

V 5.

NEW HAVEN, *Apr.* 28, '55.

DR. CUMMINGS:

SIR,—I send you by Express, this sett of teeth. it is the only one that was good and this is poor enough. I find it is uphill buisness to do much, as I have to force the work out, But the principle thing
328 will be to carry the work through right. We must have some outfitt so that I can be more by myself if much is done. I shall want you to send me some money. I think it would have been nearer right to have given me one half of the Pattent. You are aware that much depends on me to put the thing throug, and I have to hav advise as well as work from Dr. Mallet. Mr. Goodyear was hear a few Days. sence and was in high expecttaion of the result and said I aught to write to his Brother. He wanted me to git him a sett from the one he wore but I could not do it. Mr. Lorance has not maid his apperance yet but it is thort he is trying to do somthing, the matter is looked on hear with a good deal of intrest. the collers blister so far, have not been good. I shall have more out in a few Days, but fearing it may be to late for you, I send this that you could send on if I get nothing better in time.

Yours Respectfully,

F. A. BEVIN.

N. B. I shall have to be absent two or thre Days the first of the week, you may think best to come on if so informe me.

V 6

NEW HAVEN, *May*, '55.

DR. CUMMINGS:

yours is at hand with ten dollars. I have been absent a few Days, and have got to go again in doing some work, to send out to Mr. Goodyear, Maps and Globes for the Exhibition. I have tryd on Colors, but they don't come good as yet We have tried on gum teeth, and have got

out a few setts, but thay have not been good or worth sending. I have tried to do the best under the present circumstances, as the German is against me, he is trying on teeth to. You ask what it would cost, from $100, two hundred Dollars, according as it is thort best, and it mite take from 3 to 4 weeks to start the buisness. This will be
329 the only way to bring the thing out right. I have no more of that read gum, it was a pice that was found, that I sent by the way, gum teeth will be the first, and read Rubber after, when we have time. You did not reply to all of my letter, as it regards Goodyear, he must be written to at wonce, or some will be a head of us. Will you write, or shall I. It seams he is posted in what is going on hear. I shall be more at liberty in a short time, and as I can have the heater, shall be able to shoe sum good results of work.

Yours truly, &c in hast,

F. A. BEVIN.

Received of I. A. Cummings, at several difrent times, $44 Dollars, in part pay for moneys paid out, and services renderd for caring out Expearmenting on rubber plates for teeth.

F. A. BEVIN.

NEW HAVEN, *May* 4, '55.

V 7

NEW HAVEN, *July* 11, '55.

DR CUMMINGS

DEAR SIR I have done the best considering what I have to do with hear. I think the best sett will do to send. Thear was a little defect in the molds as you will see. I could not pack it as it had not room whear the band goes it should come down lower on the gumes and be a little heavier. The two poor Sett I send you, have molded over, say two or three Sett for each plate and mark them withe the improvement I speak of a bove. Heat the Rubber and the teeth will come off. I have not seen Mr. Goodyear since my returne. The rubber sett will do for a sample sett, to Electroplat and you can send it back with the others if you want to have it done.

I shall want you to hurry up and send me as menny as you can
330 if you want the work done. Send some with loops if you can. Save the old plates. Make the molds of fine plaster as the corse is bad.

Yours truly

F. A. BEVIN.

N. B. By Express.

V 8

NEW HAVEN, *Aug.* 23, '55.

DR. CUMMINGS:

SIR,—I improve a few moments in writing. I have not been able to have a sett of teeth electroplated hear; thay cannot do it. Mr. Goodyear has returned, and I have sent on a sett to New York for him to have done there. I have not heard from you sence July 21. What is the prospect in regard to gitting the Pattent? If there should be much dout on the subject it will not hinder the buisness, as the rubber, you know, lies at the foundation, and the arrangement can be maid with

Mr. Goodyear so that the right can be secured to you on the rubber. That is the way some buisness is now carred on, where they fail in a Pattent. Thay want me to com out to France again, and wrote to have me send my termes what I would come out for. I have written, stating what I should want if I cam on. But I have no desier to go, and should not think of it if I have buisness hear. The teeth should be perfected befor I go, a good deal of time is now lost. one hundred sett should now be worne in testing the thing, Mr. H. Goodyear and DeForest say to me if I do go, I must try to have the teeth buisness brought out first, and have it in youse, as there is nothing to hinder. Have you done much more with the fitting than wht you did when I was thear? Is there anny prospect of selling it. what is the best to do with it? I want you to send on some funds, as I must meet a few Bills. You did not say how you was pleased with the last work, or whether the Paper was draw right that I sent. I was sorry you had not sent a for of what you wanted.

Yours Truly,

F. A. BEVIN.

331 Will Mr. Lincoln favor me with the letter from Washington, patent teeth plate case.

J. A. CUMMINGS.
By COOK.

Aug. 25, 1855.
No. 4 Court St.
EZRA LINCOLN, Esq.

V 9.

NEW HAVEN, *Aug.* 30, 185.

DR. CUMMINGS—

DEAR SIR: Yours of the 29 is at hand, also the previous one, containing $20.00. I have filled out the affidavit as you requested, & hope that you will succeed in obtaining the patent. In regard to the electropating the man that has done Mr. Goodyears work has been burnt out & is not now to be found, as Mr. H. Goodyear & Mr. DeForest are going out to Europe, they are agoing to take out two sett for me to have electropated by Goodyears workmen in London. I shall have some to send you in a short time; You say nothing in regard to the filling, will it amount to anything or not.

Yours truly

F. A. BEVIN
pr. I. L. BEVIN.

V 10.

NEW HAVEN, *Sept.* 7, '55.

DR. CUMMINGS:

DEAR SIR, I forward you by Express 2 sett of teeth. The large one was a tryal of our twoth filling for the teeth, it has no sulpher in it. I think it may be improved so that it mite answer for temporary setts. It showes a little that way. The small sett I call good for a green Dentist what say you. Mr. H. Goodyear & DeForest saild on the 5 for
332 Europe as I wrote, DeForest will make but a short stay, and Mr. C. Goodyear will come on with him. I have got Dr. Malletts Bill, it is 25 Dollars. I shall want funds to meet it. Had I better stop or

keep doing a little in gitting samples. If there should be truble in gitting the Pattent, would not the clame be made stronger to have Mr. C. Goodyears name, and carry the matter through strate, that would cut off all others and give us a better chance. I will send you his letter. H is now in London, 47 Leccester Sqre. It may be best for you to write him a letter, would find him at eather place. I sent one of your little Books with the teeth, a large sett and a small one like this I send you, thay will have Electroplated and sent on.

Yours Truly,

F. A. BEVIN.

V 11.

NEW HAVEN, *June* 21, '56.

DR. CUMMINGS:

DEAR SIR: Your favor is at hand. I knew Mr. Hurd was in Boston every few days and thort I could git him to do the buisness. I can asure you that I feel on the subject in your not gitting a Pattent. And as you say the bills all have been met but this one by your self, and it is reather hard. You can not think the Bill large when my time is brought into the account. I wish to make it as easy for you as posable. I want the Bill settled. I have waited you know a long time. an early reply is desirable.

Yours Truly,

F. A. BEVIN.

333 V 12.

NEW HAVEN, *June* 8, 1855.

DR. CUMMINGS:

DEAR SIR: I have waited a long time to hear from you since I last wrote, perhaps you have been waiting for samples, well here they they are. I mentioned in my last letter that my time would be so occupied and haveing to be away to, I could do but a little in experimenting on the Teeth. We have just sent a package of Goods to Mr. Goodyear, Paris, and I wrote to him in regard to the Teeth, as Mr. Henry Goodyear advised me to. The Teeth that I send are from an old sett that I had cut off, and this is the first trial I made, and they are the best that I have made yet. I have been wearing a sett for some time, and I break them up occasionally as I improve on them at every new trial, as you will see by the plates that I send you it does not injure the teeth to take them out as I warm the plates. I am not connected with the German who used to trouble me so much about doing my work this sett is of my manufacture. I have not heard from Mr. Lawrence in regard to the teeth. I understand that a Mr. Batchelder of Cambridge about six months ago experimented on teeth, but could not make it work. he is engaged in experimenting on Rubber for covering "Sub Marine Telegraph Wire," he has been here at work. I showed him some teeth and mentioned to him your name, he said you was the man that ought to have the Patent as you are "ahead." Have you secured a Patent yet? and how does the buisness stand? An early reply is desirable. The samples I send by express.

Yours, Respectfully,

F. A. BEVIN,
Per J. L. BEVIN.

V 13

Mr. BEVINS

DR SIR.—The patent agent has suggested that we should have
334 samples of colored gum With French vermillion I believe you will get any shade of red you desire. If you could not at once get samples of colors in the shape of gums they would do if parts without teeth. I wish to hasten the matter up at once and wish you would get out some colours at once and forward to me—do not delay.

JOHN A. CUMMINGS.
25 *Tremont St.*

APRIL 4TH, 1855.

V 14.

BOSTON, *April 20th* 1855.

FRIEND BEVIN

Yours of date 20th inst. is rec'd. I think for the first you have done remarkably well and I wish you would get out a set of teeth immedatly with the color you send me to forward to Washington—the other specimen is in Washington and I hope and trust all is right with regard to it. I would continue to experiment so as to perfect the color &c as much as possible at the earliest period.

You had better attend the new filling as I am full of business.

Yours truly &c.

J. A. CUMMINGS.

V 15.

BOSTON, *April* 30, '55.

FRIEND BEVIN:

Yours of the 28 inst. is received together with the teeth which look pretty well although not as well as I could wish—it evedently shows great improvent over the first specimen. By the way I have lost the small peace of Gum you sent please inclose another peace in letter and send me on reception of this. What will it cost to get up
335 such works as you desire to experiment with? and how long will it take to have it all done ready to experiment? I whish we had a good set colord to send to Washington—please hurry up all you can. I inclose you ten dollars, and wish on the reception of this you would send me a receipt for all the cash you have received in the whole amount. I fell great interst in the thing and think no time should be lost.

Yours truly, &c., in haste,

JOHN A. CUMMINGS.

P. S. I do not see how I can leave how will it do for you to come on here and experiment (Write)

V 16.

BOSTON, *June* 19, 1855.

Mr. BEVIN.

DEAR SIR, Yours of 8th, inst. was duly rec'd also the specimens by Express—the gum set I like much & hope you will get out more soon—

how would it answer to electrotype the plates with gold, or put on gold-leaf or Foil & heat it on.

The Patent is getting on as well as could be expected—please try the above experiments & forward soon as possible.

Would it be of any use for me to go to New Haven I am very busy indeed.

Very truly Yours,

JOHN A. CUMMINGS.

V 17.

BOSTON *June* 25, 1855.

Mr BEVIN

DR SIR Yours of 22d is received. I think I have been doing
336 all that could be expected of me since making our agreement and have been fully as prompt as yoursf. I do not know that any fault should be found on either side and if desirable will go on to New Haven on Friday P. M. or I am strongly incled to think you had better come here to-morw P. M. I should be glad to see you here on several accounts. One in particular on account of the Patent as there is difficulty about previous experiments in Gutta Percha. I will pay all your expenses if you will come to-morw Please telegraph.

Yours truly &c.

JOHN A. CUMMINGS.

V 18.

BOSTON *July* 14, 1855

Mr F. A. BEVIN

DEAR SIR—Yours of the 11th per Express is received.

I want you to send me two or three setts of the color and appearance of the best of these you have already sent, as soon as possible.

I also wish you to send enclosed samples to New York for Electro-plating, with directions to have them finished with the utmost possible despatch (as I want them to send to Washington) and sent direct from N. Y. to my address—25 Tremont St.

Yours truly

J. A. CUMMINGS.
per B. F. BROWN.

V 19

BOSTON, *July* 21, 1855.

Mr. BEVIN:

DEAR SIR, I have just seen Mr. Lincoln Patent agt, & he wished me to get the certificate of your wearing India Rubber plate for some 8 weeks, &c. immedatly.

337 Will you have a strong certificate, or affidavit properly drawn up, and forward to me immedatly.

When will you send me more teeth, and when do you I shall get these from New York.

Yours truly, &c.

JOHN A. CUMMINGS.

V 20.

BOSTON, *Aug.* 24, '55.

F. A. BEVIN, *New Haven:*

DR. SIR, Yrs. of 23d is before me, & contents noted. Am pleased with the looks and appearance of those teeth you have forwarded. In regard to Patent, have only to say that Mr. Lincoln has forwarded all necessary documents, and am awaiting returns, and expecting patent. Shd. be pleased to have setts got up for testing.

I enclose you $20, not knowing how much you wanted, by the tenor of your letter.

Yours truly,

J. A. CUMMINGS.
pr. BROWN.

V 21.

BOSTON, *Augt* 25, 1855.

F. A. BEVIN, *New Haven—*

DR SIR: Addressed you yesterday enclosing $20. which trust has come safe to hand.

Have heard from U. S. Patent office, copy of letter I enclose you—also form of affidavit which I wish you to sign, in order to cover the grounds expressed in letter.

You will observe, the number of years you have been engaged in the manufacture of V. Rubber Goods, &c. is left blank in the affidavit.

338 Pleas fill when you sign & return to my address as soon as possible.

Yours &c

J. A. CUMMINGS.
pr BROWN.

P. S. Perhaps this affidavit had better be signed in the presence of a Justice, or Notary.

V 22.

BOSTON *Sept.* 11, '55.

F. A. BEVIN, Esq., *New Haven,*

DEAR SIR, Pleas come right on to-morrow, as both myself and Mr. Cook are anxious to see you at once,

Yours truly,

J. A. CUMMINGS.
pr BROWN.

P. S. I enclose $10.

V 23.

BOSTON *Nov.* 24, '55.

F. A. BEVIN, Esq.,

DR. SIR, I received your note this morning. We have sent you by Express 2½ lbs., of Gurta Percha. You had better go ahead with it and make 20 or 30 lbs., and try it. We want you to come to Boston and see if it cannot be made Here. We want you to go on with the India Rubber.

Enclosed Please find Ten dollars—and we will make it all right when you get Here come on Monday.

Respectfully y'rs,

J. A. CUMMINGS.
N. C. PARKER.

339 No. 3, R. E. S., EXAMINER.

F. A. Bevin in account with Dr. John A. Cummings, New Haven, Dr.

		$ cts.
Jan., 1855.	To compounding tooth filling, &c	6 00
Nov.	" experimenting on covering gold & silver plates with rubber	2 00
Jan., 1855.	" expenses to Boston and back	12 00
	" compounds for filling	9 00
	" use of machine and compounding	24 00
March 30.	" expenses to Boston and back	12 00
	" stock for rubber plates and experimenting	25 00
April.	" experiments on rubber plates for teeth	30 00
		$120 00

No. 4, R. E. S., EXAMINER.

Dr. Cummings, Cr.

Over.	Cash received	124 00
Sept.	Cash	20 00
Oct. 18.	Cash	10 00
Nov. 28.	Cash at difent times	25 00

No. 5, R. E. S., EXAMINER.

CR.

Aug. 25.	By cash	20 00
Oct. 18.	" "	10 00
Nov. 22.	" "	5 00
" 24.	By cash	10 00
" 26.	" "	10 00
	" Brought over	124 00
		$179 00

340 DR.

Nov. 28.	To telegraph and express	75
	" coloring, help, &c	1 25
Dec. 3.	" sundries for gutta-percha compound	1 50
	Brought over	275 00
		$278 50
" "	To compounding gutta-percha	4 50
		$283 00

No. 6, R. E. S., Examiner.

Cr. Boston, with J. A. Cummings. Cr.

1855		
Jan. 24.	To cash	6 00
Feb. 6.	To cash	18 00
April.	To cash	10 00
April 2.	Sent in a letter, cash,	10 00
April 30.	To cash	10 00
July 3.	To cash	50 00
August 19.	To cash	20 00
		$124 00

March, 1855.	To stock for rubber plates, and experimenting on collers, &c.	25 00
April.	To work on rubber plates for teeth, and expenses out	30 00
June.	To work on rubber plates for teeth, and for stock	20 00
	Bill of sundries for the tooth filling, dies, labelles, boxes, press, &c.	35 00
		$110 00

341 No. 1, R. E. S., Examiner.

July 12.	Expenses to New York	3 50
	Brote up	110 00
Sept.	Expenses to Boston and back	10 00
July and August.	Work on teeth and the stock	35 00
	Brote over	68 40
		$226 90

Dr. Cummings has had 1 doz. boxes of the large size twoth fillin, or 72 of the small.

1855.		Dr.
	Amount brote	226 90
Sept. 13.	Paid Dr. Mallett for Dr. Cummings, cash	20 00
Oct. 18.	Paid Dr. Mallett for Dr. Cummings	4 50
Nov. 26.	Expenses to Boston and back	13 00
	For telegraph and express	75
28.	For paints and coloring matter	50
	Paid for help, &c.	75
Dec.	Paid cash for grinding gum and omnabuse higher, 5	1 50

No. 2, R. E. S., Examiner.

May.	To boxes, labels, press, dies, &c., for tooth filling	$35 00
June.	" stock and experiments on rubber plates for teeth	20 00
" 27.	Expenses to Boston and back	12 00
July 1.	Expenses to New York	3 50

July and August.	To stock and experiments on teeth	35 00
Sept.	To expenses to Boston and back	12 00
" 13.	" cash paid Dr. Mallett for Dr. Cummings ...	20 00
Oct. 18.	" (as above)	4 50
Nov. 26.	" expenses to Boston and back	13 00
	Brought over	$120 00
		$275 00

342 June 1st, 1854. CR.

Jan., 1855.	By cash	6 00
Feb. 6.	By cash	18 00
March 30.	" "	10 00
April 30.	By cash	10 00
June 27.	" "	50 00
Aug. 25.	By cash	20 00
Sept. 12.	" "	10 00
		$124 90

EXHIBIT U, R. E. S., EXAMINER.

GREENSVILLE, *June 20th*, '65,

I. A. SALMON:

DEAR SIR, Your letter was received in my absence, and my Brother being sick, it was not answered. I do not feel much like writing about the business at present. Six weeks ago I buried my child; this week I followed my Brother to his last resting place. I do not see how I can leave here just now.

I thought I would let you know why your letter was not answered.

Respectfully yours,

WILLIAM A. BEVIN.

GREENSVILLE, *June 20th*, '65.

I. A. SALMON:

DEAR SIR, Your letter was received in my absence, and my brother being sick, it was not answered. I do not feel much like writing about the business at present. Six weeks ago I buried my child; this week I followed my brother to his last resting place. I do not see how I can leave here just now.

I thought I would let you know why your letter was not answered.

Respectfully yours,

WILLIAM A. BEVIN.

343 (Endorsed:) W. A. Bevin, to I. A. Salmon. Dated June 20, '65.

Certificate of stock annexed, as per int. 50. *R. E. S.*

[Internal revenue stamp, 25 cents, cancelled.]

No. 102. 500 SHARES.

DENTAL VULCANITE COMPANY.

Capital stock, $500,000. Shares $100 each.

[Figure of Indian.]

BOSTON, MASSACHUSETTS.

Be it known that William A. Bevin, of New York is proprietor of Five

hundred shares in the Dental Vulcanite Company, being shares numbered 420 to 919 inclusive, which shares are transferable by a conveyance in writing, recorded by the clerk of said company, the surrender to the treasurer of this certificate, when a certificate shall be issued.

GEO. P. SAVAGE, *Pres.*

Dental Vulcanite Company, Incorporated,
July, 1864, Boston, Mass.

JOSIAH BACON, *Treas.*

BOSTON, *M'ch* 13, 1865.

Copy of agreement, as per int. 45. *R. E. S.*

Copy.—Copy of contract.

This article of agreement made by and between J. A. Cummings, of Boston, county of Suffolk, and Commonwealth of Massachusetts, of the first part, and F. A. Bevin of New Haven, Connecticut, witnesseth: That whereas the said Cummings of the first part, has filed a caveat pre-
344 paratory to taking letters-patent for India-rubber or other elastic plates, and whereas F. A. Bevin of the second part for the sum of one dollar paid, and other valuable considerations rendered in perfecting the same, and for other services to be rendered shall be entitled and is hereby made joint proprietor in said invention to the amount of one-third of its entire interests and in consideration of the said premises, I the said Cummings agree to furnish such money and means as shall be necessary to perfect said patent and to enable said Bevin to make all reasonable experiments, and the said Bevin agrees in addition to the above to improve and perfect such specimens of work as samples as shall be desired from time to time and to give to said Cummings the practical results of all such experiments in said plates and to none others, in witness whereof we have hereunto set our hands and seals, at Boston this second day of April, A. D. 1855.

JOHN A. CUMMINGS. [L. S.]
F. A. BEVIN. [L. S.]

In presence of
J. C. HURD.

Letter annexed to int. 44. *R. E. S.*

OFFICE OF DENTAL VULCANITE COMPANY,
Boston, Feb. 7th, 1865.

WM. A. BEVIN, Esq.,

DEAR SIR, Enclosed please find the copies of Testimony as requested, & also the receipt for the Letters loaned me by you, all of which will I trust be satisfactory. I wrote you on Saturday last regarding Dr. Cummings' proposition to give you $30,000, free from all assessments past & for the future to be made, and if you accept his proposal, I would like to have you request me to draw up for him to sign, a guarantee against all future assessments of your stock. It would not be at all surprising if we laid another assessment ere the case is decided, & if the case is appealed to the Supreme Court, it will be certainly done.
345 If you should choose to decline the Dr's proposal, & have any position of your own to make, I will advise you conscientiously in

regard to it. I send to Joseph, to day some papers & Pictorials, which I trust may while away a few dull moments.

Regards to your family one and all from

Yours truly

JOSIAH BACON.

Letter annexed to int. 44. *R. E. S.*

OFFICE OF DENTAL VULCANITE COMPANY,
Boston, Feb'y 17th, 1865.

MESSRS. BEVINS BROS., *Greensville, C. W.:*

DEAR SIR, Your letter came to hand to-day, and I read it to the Doctor, who appears to think there is some misunderstanding in the offer made by him. But I think that I wrote it plainly, so that it could not be so. I am going to Rochester on Monday next, as we are in treaty with a party there, who wishes to buy the sole right under our Patent for Western New York, and the Dr. wishes me to go a little further, and see you, and make some verbal explanations of the matter. I will therefore, if I can possibly spare the time go on and see you again, and be at Dundas by the Train arriving there at 9½ A. M., on Wednesday next, (or Thursday, if I am detained in Rochester longer than I anticipate.) Can you conveniently drive over to that Train? I think that the matter can be arranged between you, if you properly understood his position.

At all events, I will see you at the time agreed upon, if I can spare the necessary time from my business here. I send a couple N. Y. Heralds yesterday, with the late news, for Joseph.

Remember me kindly to your family, as

Yours truly,

JOSIAH BACON.

346 *Letter annexed to int.* 44. *R. E. R.*

OFFICE OF DENTAL VULCANITE COMPANY,
Boston, March 10, 1865.

H. D. GOODWIN, Esq.,
Merc. Agency, 293 Broadway, N. Y.:

DEAR SIR,—Your esteemed favor of the 8th is at hand, and has been submitted to Dr. Cummings for instructions.

By that gentleman I am requested to reply that, if 700 shares is your ultimatum, there is no need of any further negociation in the matter; but if you have discretionary power to make any compromise between their offer and his, Dr. C. will deputize me to go on to New York and endeavor to settle the matter in such a way as may seem for mutual benefit.

I enclose my address for your reply, and remain,

Respectfully, your ob't servant,

JOSIAH BACON.

Letter annexed to int. R. E. S.

OFFICE OF DENTAL VULCANITE COMPANY,
Boston, March 16, 1855.

H. D. GOODWIN, Esq., *New York.*

DEAR SIR, I have seen Dr. Cummings, and found more difficulty than I anticipated in convincing him of the propriety of our trade.

It is all right however you can complete the transaction, and give Bevin the Stock, fill up the certificate " 420 to 919 inc'l."

I trust everything will now go smoothly and no further difficulty will arise.

Yours Truly

JOSIAH BACON, *Treas.*

347 *Deposition of Augustus B. Smith.*

Int. 1. State your name, residence, occupation, and whether you have been examined in this case before.

Ans. Augustus B. Smith; 102 Howe street, New Haven; a dentist; I have been examined in this case before.

Int. 2. State whether on your former examination, you testified that you were heretofore employed by Dr. Mallett and F. A. Bevin, in preparing hard-rubber palates or plates for the insertion of artificial teeth.

Ans. I did; I so stated, and I was so employed.

Int. 3. State whether said Bevin, during said employment, in your hearing, claimed to be the inventor of that process.

(Objected to.)

Ans. He did—many times.

Int. 4. State any circumstance by which you remember such claim, on the part of Bevin.

(Objected to.)

Ans. He complained of a German man, that was engaged with Mr. Goodyear at the time, and opposed him saying that he was the inventor of it—and Mr. Bevin positively said that it was not so—that Herring was not the inventor of it but he (Bevin) was. After that time Mr. Herring met me in the street, and seemed somewhat grieved that Bevin claimed the invention, but that now it made no difference, as he had made an improvement on it superior to Bevin's.

Int. 5. State whether Bevin, in your hearing, or to you, claimed to be the originator of the idea of making a plate of hard rubber for the insertion of artificial teeth.

(Objected to.)

Ans. He did.

Int. 6. Frequently, or otherwise?

(Objected to.)

Ans. His whole mind was on this subject, so that if he did not say it he implied it by actions. I cannot tell the number of times. I know he did once.

And further, deponent saith not.

AUGUSTUS B. SMITH.

Deposition of Henry B. Goodyear.

348 Int. 1. State your name, age, residence, and occupation.

Ans. Henry B. Goodyear; fifty-seven years; I reside at 144 Orange street, New Haven, and am a manufacturer.

Int. 2. State your relationship, if any, with the late Charles Goodyear the inventor of hard rubber, also to the late Nelson Goodyear.

Ans. I am the brother of the late Charles Goodyear who was the inventor of vulcanized rubber, and also the brother [of] the Nelson Goodyear who was the inventor of hard rubber. I have been connected with my brother Charles in making experiments in hard rubber, and have acted as administrator of my brother Nelson, since his death in 1852. My brother Charles died in 1860.

Int. 3. State whether you knew one F. A. Bevin, deceased, and, if so, whether he was employed by yourself or either of your brothers in experimenting upon rubber? When and where, as near as you recollect?

Ans. I did know F. A. Bevin. He was employed by my brother Charles in experiments with rubber, both vulcanized and hard, here in New Haven and in France, from about 1851 or 1852, to the summer of 1854. He went to France in spring of 1854, and returned in the autumn. He was not employed by me directly—although I gave him some money to assist him in his own experiments after that time.

Int. 4. State, if you can, the distinction between hard and vulcanized rubber, as you understand it.

Ans. One is very elastic, pliable, and the other is not—more hard and rigid. The latter is the hard rubber.

Int. 5. State whether you are acquainted with the use of hard or vulcanized rubber, in dentistry, as the basis for the insertion of artificial teeth.

Ans. I am.

Int. 6. State when you first became acquainted with it for that use and whether you had worn it yourself; and if so, of whose make?

(Objected to.)

Ans. The first that I can remember of my attention being called to it, distinctly, was in the year 1855, the winter of 1854–'55. I had a set made by Mr. Putnam in New York, in 1856, and have worn them ever since.

349 Int. 7. State who called your attention to the subject first, and where and the extent of the use of hard or vulcanized rubber for that purpose, so far as you know, up to this time.

Ans. F. A. Bevin first called my attention to the subject in this city, and the application has been in general use since 1856.

Int. 8. State, if you know, when your brother Charles returned from Europe, and whether or not he then wore a set of rubber teeth.

Ans. He returned in May or June 1858—and had a set of teeth on a rubber base at that time, which he wore and had worn for a long time previous.

Int. 9. State, if you know, what became of that set of teeth on a rubber base.

Ans. I have no knowledge what became of it.

Int. 10. State what you know of the experiments and work of said Bevin in making hard or vulcanized rubber plates or palates for artificial teeth, from the time that he first called your attention to the subject till his death.

Ans. I was in the habit of seeing Mr. Bevin in this city, in 1855 and 1856, and he was in the habit of showing me his samples, and wanted to make a set for me at that time. I came from England in January, 1856, and he told me then that he had been to Boston to make experiments there, and I made an arrangement—a verbal agreement—with him, that in case his experiments succeeded, he should have one-quarter interest, or one-quarter of the net proceeds, for the application; and after that, either in the latter part of 1856 or 1857, he went to Boston and established himself there with a person for vulcanizing for dentists in that city or in that vicinity—his shop was in Cambridge—which he continued to do to some comsiderable extent until he died. I know that the understanding was that he was to grant licenses. He had them printed I know; whether he sold any of them or not I cannot remember.

Int. 11. State whether you had any conversation with Mr. Bevin, at the time of the understanding between you referred to in your last an-

swer, or at any other time, in respect to the use of hard or vulcanized rubber in dentistry—as to who was the inventor of the process, and
350 whether a patent could be obtained for it, and whether he claimed to be the inventor, or attributed it to any, and what, other person?

(Objected to.)

Ans. I did have conversation with Mr. Bevin on the points inquired after—several conversations, at different times. He always claimed to be the inventor, and we often talked the matter over about getting it patented. My impression was that there could not be a good patent got for it under the rules of the office at that time.

Int. 12. State whether said Bevin, claiming to be the inventor of said application or process, sold to you, or to the Beacon Dam Company, said invention for any, and what, consideration; and if so, whether the consideration was paid.

(Objected to.)

Ans. He did claim to be the inventor, and I considered him so; and when I sold the rights, or gave the Beacon Dam Company a general license, I reserved a quarter interest of its application to dentistry for Mr. Bevin, according to our previous understanding. Subsequent to that, our company purchased of Mr. Bevin his interest by paying him in money and notes the amount of about four thousand dollars. The name of the Beacon Dam Company was subsequently changed to the American Hard-Rubber Company. The latter company has since been wound up, and their rights disposed of to another company of the same name.

Int. 13. State whether or not you are acquainted with Doctor Cummings, of Boston, a dentist; and if so, whether you have had any, and what, conversation with him respecting the use of hard or vulcanized rubber in dentistry, by himself and said Bevin, or either of them.

Ans. I have seen Dr. Cummings once. I saw him at one time in the spring of 1856, and had some conversation with him about hard-rubber plates for teeth. I was told by Mr. Bevin, (objected to,) in the early part of 1856, that he had been to Boston, experimenting with Mr. Cummings, or went there by his request, and he had become embarrassed by the operation, and he wanted me to loan him money, which I did. It was shortly after this that I called upon Mr. Cummings. My object was to induce him to take an interest in the matter, and help de-
351 velop it. I got no satisfaction from Mr. Cummings, and got the impression from what he said—general conversation—that he had not any confidence in it.

Int. 14. State whether Dr. Cummings, in the conversation referred to in your last answer, or at any other time, has claimed to you to be the inventor of the application of hard rubber or vulcanized rubber to dentistry.

(Objected to as leading.)

Ans. I don't think he did, although I cannot state positively.

Int. 15. State whether you have had more than one interview with him.

Ans. I don't remember of any other but that one.

Int. 16. State whether your brother, Nelson Goodyear, had any and what knowledge of the use of hard or vulcanized rubber in dentistry.

Ans. He had none, to my knowledge.

Int. 17. State whether you know William A. Bevin, son of F. A. Bevin; and if so, whether he has been in your employ, and what he did.

Ans. I do know him. I think he was acting as agent for our com-

pany, in Boston, in vulcanizing plates for teeth and selling rights there for some time after his father's death.

Cross-examination:

Cross-int. 1. You said your object in calling upon Dr. Cummings, after having seen Bevin, and lending him some money, was to induce Dr. Cummings to take an interest in the matter, and help develop it. You do not mean take an interest in the sense of connecting himself with the enterprise, do you? Had he not been already for some time connected with Mr. Bevin in it?

Ans. I do mean to take an interest, or to continue the interest rather, which I supposed he had already commenced with Mr. Bevin.

Cross-int. 2. Had Mr. Bevin previously stated to you that he was experimenting in the hard-rubber plates at the expense of Dr. Cummings?

Ans. He did not say that he was experimenting at his expense, but that he had an un anding with Dr. Cummings to come to
352 Boston, and make experiments there at the expense of Dr. Cummings, and complained that Dr. Cummings did not carry out his agreement.

Cross-int. 3. Did you know at the time of these conversations with Bevin and Dr. Cummings, in 1856, that Dr. Cummings had filed an application for a patent in the year previous for the hard-rubber plates?

Ans. I have no recollection of such application being mentioned by any one at that time. I did not then know of the application.

Cross-int. 4. When did you first know of it?

Ans. I cannot state the time, but some three or four or five years since I recollect that, in conversation with Mr. Benjamin F. Cooke, of Boston, there was something said about an application for a patent, but the first knowledge that I had of an application by Dr. Cummings was after the patent was granted.

Cross-int. 5. Where was this conversation with Mr. Cooke, if you remember?

Ans. In his office, in Boston.

Cross-int. 6. Who was present beside you two?

Ans. I don't remember that there was any one present. If there was, I shouldn't remember. I didn't consider the matter of any importance at that time.

Cross-int. 7. Did you call to see him expressly on the subject of hard-rubber plates?

Ans. No, sir; I hadn't the thing in my mind when I called.

Cross-int. 8. When did you go to England on the journey from which you returned in January, 1856?

Ans. I sailed on the 5th of September, 1855.

Cross-int. 9. State, as nearly as you can, when you had your first conversation with Bevin in regard to his experiments in hard-rubber plates. Was it in, or before, or after the spring of 1855?

Ans. I can't state distinctly when my first conversation with Mr. Bevin was. I think it was as early as 1853 or 1854; but I think that the first time that I had any conversation with him to take any interest in the matter was in the winter of 1854–'55.

Cross-int. 10. You say that after your return from England, in January, 1856, you made an agreement with Bevin that, if his experi-
353 ment succeeded, he should have a quarter interest or a quarter of the net proceeds of the application. Do you mean one-quarter of the interest in or net proceeds of the use of hard rubber for dental plates?

Ans. I did not mean to state, in my previous answer, when that agreement was made; but the agreement was meant to include one-quarter of all the net proceeds of the application of hard rubber to dentistry for the first term of the patent.

Cross-int. 11. Can you not say whether this agreement was made before you went to England, in September, 1855, or after you returned, in January, 1856?

Ans. I cannot; but I can say that it was made after I returned from England, in the autumn of 1854. My impression is, it was made previous to my going to England, in 1855.

Cross-int. 12. You say that, at the time when Bevin talked with you about a patent being obtained for the hard-rubber dental plates, you thought there could not be a good patent got for it under the rules of the office at that time. Do you understand that the rules of the office, or the principles governing its action in granting or refusing patents, have been modified since that time; and if so, in what respect?

Ans. So far as my knowledge goes, my impression is, that patents are granted for new applications, which at that time I got the impression they would not grant them for. My impression was made up from general observation and knowledge. I certainly should have advised Mr. Bevin to apply for a patent, if I had reason to suppose he would have been successful in obtaining it.

And further saith not.

HENRY B. GOODYEAR.

Deposition of William C. DeForest.

Int. 1. State your name, age, residence, and occupation.

354 Ans. William C. DeForest; sixty-eight; I reside at 112 College st., New Haven; and am a manufacturer by occupation.

Int. 2. State your relation, if any, to Charles Goodyear, deceased, the inventor of vulcanized rubber.

Ans. He was my brother-in-law.

Int. 3. State whether or not you were acquainted with F. A. Bevin, deceased; and if so, how long you knew him, and under what circumstances your acquaintance occurred.

Ans. Mr. Bevin was employed by us in 1849, and from that down to 1854.

Int. 4. State whether he ever resided or boarded in your family; and if so, when and where.

Ans. He boarded in my family in Naugatuck, in this State, in the winter of 1848–'49, I think. I removed from Naugatuck to New Haven in the spring of 1849. Mr. Bevin removed here also in the year, I think, and worked in our experiment shop. He did not board with me in New Haven.

Int. 5. State whether you had any knowledge of Mr. Bevin's experiments in the use of hard or vulcanized rubber for dental plates; and if so, when and where for the first time.

Ans. Mr. Bevin spoke of the subject, I think, as early as the year 1853; at least spoke of the application, and I think experimented in the spring of 1854, before he went to Europe. On his return from Europe, in the autumn of 1854, he was quite enthusiastic on the subject, and made it a specialty. He was in very poor health when he first returned, and not able to do anything immediately, but during the winter and spring of 1854–'55 he made experiments in our shop in Union street.

Int. 6. State whether or not Mr. Bevin claimed to be the inventor of the application of hard or vulcanized rubber to dentistry.

(Objected to.)

Ans. He did claim to be the inventor.

Int. 7. State whether or not he ever experimented in Boston on that subject prior to his return from Europe in the autumn of 1854.

Ans. He did not.

Int. 8. State whether, from your knowledge of him, you would have been likely to know if he had any connection with Dr. Cummings,
355 of Boston, prior to his return from Europe.

(Objected to.)

Ans. I am sure I should have known it.

Int. 9. When did you first know of his experimenting with Dr. Cummings, of Boston?

Ans. I believe it was in the summer of 1855 or autumn.

Int. 10. What were Mr. Bevin's pecuniary circumstances while you knew him?

Ans. He depended upon his daily earnings for the support of himself and family.

And further saith not.

WM C. DE FOREST.

Deposition of Charles Goodyear, jr.

Int. 1. State your name, age, residence, and occupation.

Ans. Charles Goodyear, jr.; age, thirty-two; residence, New Rochelle, New York; and a merchant by occupation.

Int. 2. State whether you are acquainted with the use of hard or vulcanized rubber as applied to dentistry now practised.

Ans. I am.

Int. 3. State your relationship, if any, to Charles Goodyear, deceased, the inventor of vulcanized rubber.

Ans. I am his son.

Int. 4. State whether you administered upon his estate.

Ans. I am his executor, and have charge of his effects as such.

Int. 5. State whether or not you have applied hard or vulcanized rubber as a basis for artificial teeth; and if so, whether you have taken out for the same any patents in the United States or in foreign countries.

(Objected to.)

Ans. I have. In the fall of the year 1854, or winter of 1854–'55, I made experiments in applying hard rubber to plates or gums for artificial teeth, and took out patents in England and France for the invention.

356 Int. 6. Have you any specimen of your work then made; and if so, will you exhibit it to be marked by the commissioner as an exhibit in this case?

Ans. I have a sample plate that I made for my late father in the winter of 1854–'55. He wore it for a short time on trial. I produce the sample.

(The sample produced is marked by me, "Goodyear." C. R. I. U. S. C.)

Int. 7. State whether said exhibit consists of hard-rubber basis, with mineral teeth inserted.

Ans. It does.

Int. 8. Where did you make that?

Ans. In Paris.

Int. 9. Have you made similar work in the United States?

Ans. I have not.

Int. 10. Has similar work, to your knowledge, been in general use in the United States; and if so, for how many years past?

Ans. When I returned to this country, in 1858, it was in use to some extent, and it has become more and more generally introduced since that time.

And further saith not.

CHA'S GOODYEAR, JR.

Deposition of I. A. Salmon.

Int. 1. What is your name, and state whether you have already given a deposition in this case?

Ans. My name is I. A. Salmon. I have already given a deposition in this case.

Int. 2. Have you or not had correspondence in writing with W. A. Bevin in relation to the information he was supposed to possess in reference to the invention of the use of hard rubber as a base for artificial teeth, or in regard to his testifying in this case; and if yea, have you in your possession letters received in reply to letters sent by you to said Bevin; and if so, will you produce such letters?

(Objected to.)

Ans. I have. I produce one such, and the other was annexed
357 to my former deposition. This was in reply to one I wrote to William, and appears to be signed by his brother J. L. Bevin.

(A copy of such letter is produced and marked "Def't's Exhibit Z.")

I. A. SALMON.

Counsel for compl'ts declines to cross-examine.

Def't's Exhibit Z.

GREENVILLE, *Dec.* 5, 1864.

DR. SALMON DEAR SIR

You may be surprised at my long silence with good reason. I have been waiting to hear from my Uncle, but he having changed his post-office my letter did not reach him for some time, and I have just received his reply, he does not give any dates but states that father told him of his invention and showed him specimens which he showed to Dr. Cummings the Dr was not at first favorably impressed but eventually expressed an interest and solicited an interview and they entered into an agreement, they applied for a patent and were refused. Dr. C. became discouraged and refused to do anything more with the thing. The contract I cannot find among father's papers. the first caveat was drawn up by Ezra Lincoln. I find a letter from my uncle to my father dated Nov. 4th. 1853 where he speaks of the invention and suggests Dr. Cummings as a proper person to take hold of it with him this is the first reference I find to Cumming's name. in March father went to Europe and returned in September. the thing stood still while he was gone. I find another letter of Uncles dated Nov. 8th 1854 where reference is made to Cummings's having lost a set of India Rubber teeth which father made for him. I also a letter from Cummings to father dated Nov. 27th 1854 where he refers to the matter and asks father to come on to Boston and see him, another letter of Uncles to father says "no contract has been signed but the following is our verbal agree-
358 ment, that your invention should require one half of the net in-

come, his (Cummings) services and capital should require the other half, the material should be first paid, the capital next, the profits equally divided, this should continue until a contract or sale of the invention and the business closed" this is dated March 17 '55, a letter of Cummings dated July 21 1855 contained the first allusion to a patent Lincoln wanted a strong certificate drawn up by father certifying that he had worn India Rubber teeth so long.

The fact of the matter is there is evidence enough if it can be properly got at to prove to every ones satisfaction that Cummings is not the inventor of the vulcanite process, and whatever right he did hold he forfeited by nonfulfilling his contract.

If I was there on the ground and could see my Uncle who acted as father's attorney in the whole matter I am convinced the thing could be set in its proper light.

very Truly Yours

W. A. BEVIN
pr. J. L. B.

Deposition George H. P. Flagg.

Int. 1. What is your name, age, residence, and occupation?

Ans. George H. P. Flagg; age, 35; residence, Boston, Mass.; occupation, dentist.

Int. 2. Are you a director and stockholder in the Dental Vulcanite Co., the complainant?

Ans. I am.

Int. 3. Were you ever in partnership, in the practice of dentistry, with Dr. Jno. A. Cummings, the grantee of the patent in which this suit is founded?

Ans. I was.

359 Int. 4. When did that partnership commence, and when did it terminate?

Ans. It commenced in November, 1855, and terminated in July, 1860.

Int. 5. Had you known Dr. Cummings previously to forming that copartnership; and if yea, how long had you known him and how intimately?

Ans. I had known him quite intimately from five to ten years before going into partnership with him; ever since he was in business in Tremont street, at No. 25.

Int. 6. With whom were you connected in the practice of dentistry before you formed a copartnership with Dr. Cummings?

Ans. With Dr. W. T. G. Morton.

Int. 7. Please state the time when, as nearly as you can, the place where, and the circumstances under which you first had knowledge of any studies or experiments by Dr. Cummings in relation to hard-rubber plates as a base for artificial mineral teeth.

Ans. In the building where I worked when I was engaged with Dr. Morton a room was rented to B. F. Cooke, attorney. Dr. Cummings was frequently up there—in fact used to go up nearly every day. He was engaged with Mr. Cooke in this rubber business, as he was counsel for Dr. Cummings, and always stopped, as he went up stairs, and spoke to me, or, as a general thing, the door was always open. I asked him what he was doing up there so much; he told me I should know some day or other. Shortly after that I was in Mr. Cooke's room, and he explained the whole matter of the rubber plates to me. I laughed at him, and told him I didn't believe anything in it. The matter then dropped

for a few days, and I was in again, and he repeated the same thing; he renewed the subject repeatedly from time to time.

Int. 8. Where is Mr. B. F. Cooke now?

Ans. In the Insane Asylum, at South Boston.

Int. 9. You say that Dr. Cummings, in Mr. Cooke's room, explained, on a certain occasion, the whole matter of the rubber plates to you. Give his explanation—his language if you can; if you cannot, give the substance of it.

Ans. The first time I ever had a talk with Cooke, he was alone. Cummings was not with him.

360 Int. 10. Please give any explanation which was made to you at or about this time by Dr. Cummings, or by Mr. Cooke in his presence, of Dr. Cummings' studies or experiments in regard to the hard-rubber plates.

Ans. They showed me a plate, with teeth attached; it was made from some model taken as an impression from the mouth, made of rubber, with gum teeth inserted, such as we use in gold and silver work. By "gum teeth" I mean mineral teeth, with mineral gums attached, colored in imitation of nature. The rubber was hard rubber. The color was rather poor—dark brown I should say. It would be hard to describe some colors which were made at first. This was in Mr. Cooke's room.

Int. 11. Where was Mr. Cooke's room where you saw this set.

Ans. No. 17 Tremont street now. The numbers having been changed since then. It was then No. 19 Tremont row.

Int. 12. Previously to 1855, where was Dr. Morton during the winter for several years?

Ans. At Washington.

Int. 13. Did you see this set you have just described, before or after the year 1855; and if before, how long before, to the best of your recollection?

Ans. It must have been in the latter part of 1854, to the best of my recollection.

Int. 14. Had the subject been mentioned to you by Dr. Cummings before you saw that set?

(Objected to.)

Ans. Yes, sir.

Int. 15. Was it in, or previously to, 1854, to the best of your recollection, that Dr. Cummings first spoke to you of using hard-rubber plates for artificial teeth.

(Objected to.)

Ans. It was in 1854, to the best of my recollection.

Int. 16. Did you see a set of mineral teeth mounted in a hard-rubber plate, in wear by Mr. B. F. Cooke, after this first plate you mentioned?

Ans. I did.

Int. 17. Was that before or after you went into partnership with Dr. Cummings?

Ans. Before.

Int. 18. How much, if any, examination did you give to this
361 set, and will you please describe the set particularly as to its color and workmanship generally and as to any peculiarity in its function?

Ans. I looked at it closely in the mouth; found that it fitted fairly, took it out and found one peculiarity about it, that was this, the roots of the teeth had been left in, and in one of these roots was a very large cavity, and in that rubber plate was a rubber pin (as you might call it) that filled that cavity full, or nearly so. On that set were teeth with

gums and without gums. The rubber was of a dark brownish color; perhaps my idea of brown don't agree with other people's, but of a dark color.

Int. 19. Do you know how long Mr. Cooke wore this set?

Ans. I do not; I saw him have it sometime afterwards, and used to look at it occasionally; more particularly he called my attention to it.

Int. 20. Was it a complete set or a partial set?

. A partial set, somewhere from five to seven teeth, I should say.

Int. 21. Did you see this set before or after you began to negotiate with Dr. Cummings for your proposed partnership?

Ans. Before.

Int. 22. When did you begin such negotiations?

Ans. I should say two months or more before November, 1855, when the papers were made out.

Int. 23. When Dr. Cummings proposed to you his proposed hard-rubber plates, did he say anything in regard to you interesting yourself in it; if so, what did he say?

(Objected to.)

Ans. Not at that time, in 1854. He did along in the early part of 1855. At that time he simply asked me to try it. Cooke, perhaps, had more to say than the doctor about it.

Int. 24. How did this partial set of Mr. Cooke's compare, in point of workmanship, with other partial sets of hard rubber which you have since seen?

Ans. That was a very fair set. I've seen sets made since, that were not so good as that, but I don't mean that that set was made as it should be, by any means; I don't want the court to understand that.

362 Int. 25. When you say that set was not made as it should be, please state just what you mean, and whether that set was a practical and useful set of teeth or not.

Ans. In the first place the teeth were not made for rubber—were not adapted for rubber work. Laying aside that, being a little bungling, not a good color, and not finished well, I don't see but it was as good a set as we make to-day. My idea of rubber, is to-day, that it is not adapted to partial sets in most cases; I very rarely use it in my own practice for partial sets.

Int. 26. As to the color of that set which Mr. Cooke was wearing in 1855, how did it compare with the average of hard-rubber sets which dentists now make?

Ans. I can't say as to the average, but I've seen sets that are now made not any better than that in color; I might say not as good.

Int. 27. By sets now made do you mean made for and used by customers?

Ans. Yes, sir.

Int. 28. Is there any difference in the practice of different dentists as to the perfection of color they give to their hard-rubber work, and to the other particulars of that work as it is now practised; and, without naming names, say what degree of perfection in these respects the ordinary hard-rubber work of dentists embraces?

Ans. There is a great difference in the color, and in other particulars. There's a vast difference in sets made of the same lot of rubber according as they are vulcanized. Some may be very dark and some of good [color]; that is chiefly brought about by the manner of vulcanizing.

Int. 29. What difference, if any, is there between the mineral teeth now used by dentists in hard-rubber work, and the mineral teeth as

they were in the market in the early part of 1855, bearing upon the difficulty or facility of making good hard-rubber work?

An. In 1855, all the teeth were made for gold and silver work. Teeth were made too thin; pins too short, and all the gum teeth were made single. Now the rubber teeth or teeth for rubber work are made two or three in a block, making lip joints, the pins being much longer they are bent or headed so as to have a strong hold in the rubber—in
363 fact, every way adapted to this work, as they are made particularly for it. The teeth are made thicker than the old teeth made for gold and silver work. There are now a few single gum teeth made, but they are rarely used for rubber, and they are made more particularly for partial sets.

Int. 30. How recently did the blocks of teeth come into the market so as to be obtained by dentists generally?

Ans. I should say about '60, to the best of my knowledge.

Int. 31. Have there been improvements in other respects of the means and appliances for mounting teeth in hard rubber within six or eight years?

Ans. There has.

Int. 32. Is the rubber which the dentists now use for their hard-rubber plate work, furnished by the Hard Rubber Company, ready colored for dental use?

Ans. It is.

Int. 33. Within that time has the gum been so colored by the rubber company?

Ans. About the first I ever saw was in '60—about '60.

Int. 34. Until the gum was so furnished by the rubber company ready colored, was vulcanized gum colored at all for any purpose, to your knowledge?

Ans. I don't recollect seeing any only that I saw made by Dr. Cummings; I've no recollection of it.

Int. 35. When did you first introduce hard rubber for artificial plates in your own practice?

Ans. I should judge in 1860. If I had my license I could tell distinctly.

Int. 36. Why did you not introduce it sooner?

Ans. One reason was I didn't believe in it. I thought gold was preferable to it. The color was not as I liked and I thought it would be difficult to repair, and supposed that it would draw the mouth; also it would have a great tendency to cheapen the work, and I believe in raising the standard of work instead of cheapening it.

Int. 37. When you and Dr. Cummings went into partnership and afterwards, did Dr. Cummings advocate the adoption of the hard-rubber plates in your copartnership practice? and if yea, state how frequently, how constantly, how earnestly.

(Objected to.)

Ans. He did. We had various long talks about adopting it at various times. I know he used to talk to me quite often about the mat-
364 ter; I used to wish the devil had him, he used to bother me so about the thing.

Int. 38. Did this urgency of Dr. Cummings upon the subject continue, and how long, after you became partners?

(Objected to.)

Ans. It did. I couldn't well say how long, but I should judge it was a year or two, more or less, he and his workman Mr. Bevin.

(Adjourned for fifteen minutes.)

Resumed:

Witness says that, since the adjournment, on examining his license he finds that it is dated March 10th, 1862, and that it was after that, that he introduced the India-rubber plates in his own practice; and further says that he desires to add to his last answer, as follows: When I say urgency for a year or two, I mean to say that he used to insist upon it for the first two years, and after that he was always talking of it until, and after, we dissolved.

Int. 39. Which was the senior partner of your firm, you or Dr. Cummings?

Ans. Dr. Cummings.

Int. 40. That being so, why did not his will govern in the matter of the introduction of the hard-rubber plates?

Ans. In the first place, I had sole control of all the artificial work, and of all the men in the office; and to cross me in my arrangements, I don't think would have been very pleasant for him. I kept all the books, kept all the money, and paid everything.

Int. 41. What was Dr. Cumming's pecuniary condition at this time; that is, in 1855, and until you dissolved?

Ans. In 1855 he was in good condition pecuniarily. When we dissolved, his condition was greatly changed. His condition was one which I should consider very poor circumstances. I had knowledge of all his private affairs as to money matters, kept his books, and looked after them.

Int. 42. Entertaining the opinions or impressions that you did in regard to the use of hard-rubber plates, as before testified, why did you finally consent to try them in your practice?

365 Ans. From necessity; from the fact that I had calls for it from my patients every day, and because it could be made cheaper. Another reason was my patients told me that their friends liked rubber a great deal better.

Int. 43. You said, earlier in your deposition, that the superior cheapness of the plate was not, in your judgment, any recommendation of it. Did circumstances make it otherwise at the time you took it up; if so, what circumstances?

Ans. The superior cheapness of the thing forced me to take it up, though I still think that the cheapness of it is really no recommendation. I charge now, for rubber plates on a set of teeth, within five dollars of my price for a set of gold. That carries out my principle—my idea of things. I might add that, when I first worked rubber, I didn't charge that price, but I've brought it up so that my patients are willing to pay me for it.

(Adjourned to Wednesday, 12th Feb., at 9 a. m.)

Resumed:

Int. 44. After you went into partnership with Dr. Cummings, were you applied to by F. A. Bevin upon the subject of using or preparing the hard-rubber plates in your business, or on your premises; if so, will you state when he so applied to you, and what he asked you to do or consent to?

(Objected to.)

Ans. He applied to me frequently in regard to using the hard-rubber plates; and also to get my consent to put up a boiler or heater in our laboratory for the purpose of vulcanizing; he event went so far as to go into the laboratory and select a place to have it built. This heater was a large boiler set in brick-work to be heated with hard coal; he said

it would be from five to six feet long, and the diameter from one and one-half to two feet. The heaters now in use are portable furnaces about the size of a man's hat.

Int. 45. Previously to your going into partnership with Dr. Cummings, had you seen Mr. Bevin and heard him talk on the subject of the hard-rubber plate work in which he was engaged?

(Obj. to.)

Ans. I had.

366 Int. 46. State where, how often, under what circumstances, and what, if anything, you have heard Mr. Bevin say as to whose invention the hard-rubber plates for artificial teeth were, and what the nature of his connection with the subject was.

(Objected to.)

Ans. He was introduced to me, in the early part of 1855, by Mr. Cooke, at his office, as the gentleman who was employed by Mr. Cummings to manufacture plates and experiment for him. He then showed me an upper set of teeth which he was wearing and wished me to examine it in the mouth, which I did. I found it a good fair piece of work, similar to the one worn by Mr. Cooke as regards color and workmanship. I saw him frequently in Mr. Cooke's office, both with Dr. Cummings and Mr. Cooke, up to the time I went into partnership, November, '55. He told me that he was employed by Dr. Cummings for experimenting both as to the working of the rubber and the color. He never spoke of the hard-rubber plates in any other way than as Dr. Cummings' invention.

Int. 47. Have you in your possession any hard-rubber plate which was made by Dr. Cummings or under his direction, during or previous to your connection with him; if yea, will you produce the same to be marked as an exhibit with your deposition?

Ans. I have; I produce it, marked "Complainants' Exhibit 12."

Int. 48. State how early, to your knowledge, the set marked "Ex. 12," was in existence, and how it came into your possession.

Ans. I saw that first at Mr. Cooke's office, with others shown me by them. This was in the early part of 1855. I can't tell the exact time, but it was along before I began to talk with Dr. Cummings about going in with him, which was in August or thereabouts.

Int. 49. How many others did you see in Mr. Cooke's office, when you saw this one, and how did this compare with the others you then saw, as regards workmanship, color, &c.?

Ans. I saw various pieces there from time to time; I couldn't say as to the exact number, but I saw a number of pieces there with teeth attached, also plates without teeth at the time referred to. As far as color and workmanship is concerned this is about the same as the

367 rest. There were some teeth I saw there which had gums on, which makes teeth look a great deal better than without them. This set, "Ex. 12," was in Dr. Cummings' show case when I went into partnership with him, after which I purchased the whole of his right, title, and interest in the concern, and it fell to me.

Int. 50. State what your own practice is, and that of other dentists, so far as you know, in regard to the use of sets having both plate and gums formed of the hard rubber.

Ans. I make part of my temporary set, with teeth without gums. The cheaper the class of work a dentist does, the more in proportion he makes his temporary sets without mineral gums, and some of them make even permanent sets without them.

Int. 51. Have you recently, and when, visited the Patent Office at

Washington, and examined the set of teeth placed as a model with Dr. Cummings' application for a patent in 1864?

Ans. I have. It was some time last fall or winter. I can give you the exact date by reference to my papers.

Int. 52. Please describe the model set you so examined, and state whether you ever saw it before, and when and where you first saw it, and whether it was in the same condition on the files of the Patent Office as when you first saw it.

Ans. I had seen it before; I saw it in Dr. Cummings' office long before I went into partnership with him. It was in the same condition when I saw it on the files of the Patent Office as when I first saw it. It is an upper set—a full upper set—it had been gilded or electroplated. I think it had a composition of copper covered with gold. Part of it had been raised up—this composition—in order to show the color of the rubber. It was electroplated, as described, when I first saw it, and had single mineral gum teeth, such as is used for gold and silver-plate work.

Int. 53. How does this model set compare in color, workmanship, etc., with the set you saw in wear by Mr. Cooke, in 1855, and with sets now made by dentists?

Ans. I should say it was just about the same in every respect as Cooke's. The finish I could not tell so well of, because it was
368 covered. I only saw a little spot where I raised it up. This set resembled Mr. Bevin's set very much—the one he wore in 1855—and it is a question, in my mind, whether it may not be from the same mould.

Int. 54. Did Mr. Bevin ever describe to you, while he was at work for Dr. Cummings, the method of preparing and putting up the hard-rubber sets for Dr. Cummings, which he, Bevin, practised at New Haven?

Ans. He did.

Int. 55. Was it similar to or different from the method described in the present reissue of Dr. Cummings' patent;

(Objected to.)

Ans. Similar.

Int. 56. What arrangement was made, if any, between you and Dr. Cummings with regard to his interest in your firm's business when you and he dissolved copartnership in 1860? State fully.

Ans. He was not to practise for five years within four or five miles, I forget which, (I have got the statement,) of Boston.

(Answer objected to.)

In about one year after that—less than one year—he came to me and wanted to make some arrangement whereby he might practise dentistry again, saying that he was completely used up as to funds. He said he had not got a dollar in the world, and as he had no right to practise again for five years, without my consent, he wanted to try and make some arrangement whereby he might go to practising again. I asked him to make me some offer. He said he was ashamed to. I insisted upon it. He wanted I should make an offer, which I refused. After I repeated the request, he complied, saying that whatever he gave me he should have to borrow, and at last made me an offer of one hundred dollars, which I accepted. In doing so, he remarked that it was nothing, and he was ashamed to make the offer.

Int. 57. Did you b'y him out when you dissolved, and what did you buy, and what did you pay?

Ans. I did buy him out; I bought all right, title, and interest to 25 Tremont st.—everything that was in there too, pertaining to dentistry,

except his interest in tooth wash, tooth powder, and nerve anodyne. I can't tell what I paid within three or four hundred dollars, as at that time, when I settled with him, we had two or three private notes
369 between us. My payments amounted to about three thousand dollars. I bought all the assets and assumed all the debts, and we owed a good deal more of money than what was due to us.

Int. 58. What family had Dr. Cummings when you dissolved?

Ans. A wife and one child.

Int. 59. When Dr. Cummings obtained from you, as you have testified, leave to resume the practice of dentistry, what rooms did he take; how did he procure them, how long did he continue to practise, and with what pecuniary result?

Ans. He took rooms next door to my office, No. 23 Tremont st. They were rooms of which my partner had the refusal, and by my advice he allowed Dr. Cummings to take them from Mr. Papanti, the owner. I think he continued to practise about nine months, losing money all the time. He broke down and went finally out of the business.

Int. 60. After the year 1856, did Dr. Cummings ever speak to you of the application he had made for a patent for the hard-rubber plates, and of his agent, Mr. Lincoln's attention or inattention, diligence or neglect in the matter? If so, state fully how often he so spoke, what he said, and to what time he continued so to speak.

(Objected to.)

Ans. He did, very frequently. He said he thought that Mr. Lincoln was very neglectful, that he couldn't see through it why that patent couldn't be procured. He said, in fact, hard things about Lincoln's neglect. He frequently so spoke up to the time of Lincoln's death.

Int. 61. Did Dr. Cummings ever, to your knowledge, abandon his intention and his efforts to secure letters-patent of the United States for hard-rubber plates for artificial teeth.

(Objected to.)

Ans. Never.

Int. 62. State, as nearly as you can, when Mr. Ezra Lincoln, Dr. Cumming's agent, died.

Ans. I should say that must have been from three to five years ago; I can tell from my papers.

Int. 63. What happened in regard to Dr. Cummings' application after Mr. Lincoln's death; what was done and who did it?

370 Ans. Dr. Cummings told me that Mr. Gavett, Mr. Ezra Lincoln's successor, had the management of that patent; about the first that I heard much about it was when Dr. Cummings came to me and told me he thought he could procure his patent through Mr. Gavett, and it was along about that time he wanted I should take an interest in the matter. He said if I would furnish him money he would give me an interest in it, if he procured it.

Int. 64. For what purpose did Dr. Cummings want you to furnish him money as he said?

(Objected to.)

Ans. To procure his patent. He wanted to pay Mr. Gavett for his services.

Int. 65. What offer, if any, did Dr. Cummings make you?

(Objected to.)

Ans. One-quarter of the patent when obtained, for a consideration of between eight and nine hundred dollars.

(The counsel for the defendant seasonably objected to all statements by the witness of conversation or statements by persons mentioned by him in his deposition.)

Cross-examination:

Cross-int. 1. When was your last business transaction with Dr. Cummings, and to what did it relate?

Ans. I bought a horse of him about two or three weeks ago.

Cross-int. 2. What other business transactions have you had with Dr. Cummings, since July 1st, 1865?

Ans. I remember nothing only buying some stock of him, or I would say he owed me on a note for which I exchanged some gold-mining stock in Canada. He gave me gold-mining stock in payment of notes I held against him.

Cross-int. 3. What was the amount of this transaction?

Ans. Between two and three hundred dollars.

Cross-int. 4. How frequently have you seen Dr. Cummings since he resumed business since 1861, and what business transactions have you had with him since that time and not before mentioned by you?

Ans. I saw him very frequently up to the time he left business. After that he went to Dunstable and I saw him occasionally in Boston. I had no business transactions with him until 1864, and that was
371 in relation to assisting him in money for procuring his patents. I also loaned him money after the patent was procured, which he has since paid me.

Cross-int. 5. When did you first see F. A. Bevin, in Dr. Cummings's office? How long was he there, and in what occupation engaged?

Ans. I first saw him in Dr. Cummings's office after I was in partnership with Dr. Cummings, perhaps within a week or fortnight after going into the partnership, because he was always there, or frequently, when he was in town. He never *done* but very little work in that office; I didn't see him for any length of time; he was in there off and on frequently. He and Cummings were together a good deal. Whenever I saw him he was mixing up plaster for making those moulds for vulcanizing.

Cross-int. 6. What sort of a man was Bevin; what his characteristics and peculiarities, if any?

Ans. He was a great bore to me, anyhow. He was an honest, straightforward man, I think, but his whole mind was on rubber, which made him very disagreeable to me.

Cross-int. 7. Do you know who made the set of teeth offered by you, and marked "Complainants' Exhibit 12?" and if yea, state by whom, when, and where they were made.

Ans. Those teeth were shown me in Mr. Cooke's room when Dr. Cummings, Mr. Cooke, and Mr. Bevin were together—that and a number of others were shown me together, which was made by them. I can't say where they were made. Mr. Bevin manufactured or vulcanized them for Dr. Cummings.

Cross-int. 8. How do you know that they were manufactured or vulcanized for Dr. Cummings, as stated in your last answer?

Ans. Mr. Bevin told me so.

Cross-int. 9. Who were present when Mr. Bevin told you so?

Ans. Dr. Cummings and Mr. Cooke.

Cross-int. 10. Do you know who made the model on file in the Patent Office with Dr. Cummings' application for a patent in 1864, and which you say you saw last winter or autumn?

Ans. Mr. Bevin made it for Dr. Cummings.

372 Cross-int. 11. When and where did he make it?

Ans. Before I went into partnership with him. I don't know where.

Cross-int. 12. Who put on the copper plate of which you have spoken as being gilded or electrotyped?

Ans. I don't know. It was on the first time I ever saw it.

Cross int. 13. When was that?

Ans. I can't say, but it was sometime before I went into partnership with him. My impression is that it was in the early part of 1855.

Cross int. 14. Describe it as when you first saw it, and state whether the same description was applicable when you saw it last winter or autumn in the Patent Office?

Ans. It was a whole upper set of single-gum teeth. It was galvanized as described, and remained the same in the Patent Office with the exception of a part of the gilding, being raised up and exposing the rubber plate.

Cross-int. 15. What part of the plate was so exposed?

Ans. It was on the under surface of the plate as it would appear when in the mouth. My impression is it was the centre of the back part of the plate.

Cross-int. 16. Did the gilded copper cover the entire surface of the hard rubber, under and upper sides?

Ans. It covered the entire surface of the rubber plate.

Cross-int. 17. By what means was the copper plate attached to the teeth and rubber?

Ans. I don't know. I suppose it must have been electrotyped; thrown on by a battery, the copper first, as I suppose the gold would not adhere to the rubber.

Cross-int. 18. Could the model have been wore safely, and made practically useful by the person for whom it was made, assuming it to have been made after an impression of a human mouth?

Ans. I should say it could, as long as the gilding remained perfect.

Cross-int. 19. How long would the gilding have remained perfect?

Ans. I never had the slightest experience as to gilding, and therefore I couldn't judge.

Cross-int. 20. Do you not remember that the copper plate upon the model in the Patent Office extends over a portion only, not ex-
373 ceeding one-half of the under surface of the rubber plate?

Ans. I don't remember it only as I described it before. I remember of starting it up a very little more myself, in examining it—a trifle, I might say.

Cross-int. 21. Have you any personal knowledge of the acts or contract of Mr. Ezra Lincoln in reference to obtaining a patent for Dr. Cummings; and if any, what?

Ans. I have not. All my information was through Dr. Cummings.

Cross-int. 22. Have you any knowledge that Dr. Cummings, previous to the year 1856, ever made a hard-rubber plate and mounted a set of teeth thereon?

Ans. I have.

Cross-int. 23. When and where were they made, and for whom?

Ans. I first saw them in the early part of '55—one partial set for Mr. Cooke; also one whole upper set for Mr. Bevin. I can't state where they were made. Mr. Bevin told me that Dr. Cummings took the impression from Mr. Cooke's mouth.

(That portion of the answer commencing "Mr. Bevin told me" to the end, objected to.)

Cross-int. 24. If you cannot say where they were made—meaning the set for Bevin and the set for Cooke—how can you say that they were made by Dr. Cummings?

Ans. If a set of teeth is made in my office by one of my men, in my employ, even if I never had anything to do with it, I should consider it my work. As Mr. Bevin was employed by Dr. Cummings—part of which Dr. Cummings done himself—I am now speaking of these plates, are my reasons why I speak as I have.

Cross-int. 25. Is it within your personal knowledge that any part of the work upon Bevin's set was done by Dr. Cummings; and if so, what part, and when and where was the work so done by Dr. Cummings performed?

Ans. It is not within my personal knowledge.

Adjourned to 9 o'clock to-morrow.

Resumed 13th July.

I wish to add to my last answer that Dr. Cummings showed me the set referred to, and said it was his work.

374 Cross-int. 26. Where were you when Dr. Cummings showed you the set of teeth worn by Bevin; who were present; and please state in the language used by Cummings what was said.

Ans. I was in Mr. Cooke's office—Mr. Cooke, Dr. Cummings, and Mr. Bevin were present. Dr. Cummings asked me to examine this set of teeth which was in Mr. Bevin's mouth. He simply showed it to me in Bevin's mouth; I examined it, and Dr. Cummings said, "Doctor, don't that fit well?"

Cross-int. 27. Did Bevin say anything; and if so, what did he say?

Ans. He said that it fitted a great deal better, and felt more comfortable in his mouth than anything he had ever worn before.

Cross-int. 28. Did you understand and believe at the time this conversation took place that the hard-rubber work in the set of teeth spoken of was done by Bevin and not by Cummings?

Ans. I supposed that the vulcanizing part was done by Mr. Bevin.

Cross-int 29. Do you know what part was really done by Cummings?

Ans. I do not.

Cross-int. 30. Can you say that any part of the work was done by him?

Ans. I cannot.

Cross-int. 31. State when and where, if ever, you first saw Cummings at work upon a set of teeth with hard-rubber plate?

Ans. I never saw him, for we did nothing in rubber work after my copartnership with him in November, '55.

Cross-int. 32. You have spoken of Bevin as being in Dr. Cummings's employment. Do you know anything of an agreement between them existing in 1854 or 1855?

Ans. No, sir; I knew nothing about it until after the patent was issued.

Cross-int. 33. What amount of stock do you own in the Dental Vulcanite Co?

Ans. About six hundred shares.

Cross-int. 34. What is the par value of the shares, and how much has been paid upon each by the holders?

Ans. The par value is one hundred dollars a share. I paid for mine between eight and nine hundred dollars, as before testified. There have been no assessments.

375 Cross-int. 35. Do you know whether anything has been paid by other stockholders; and if so, state how much?

Ans. Twelve thousand six hundred dollars was sold at par for cash,

and deposited in the treasurer's hands, when the company was first started. There was also a personal guaranty to the treasurer that he might have as much more as he wanted. This was by some of the large and wealthy stockholders.

Cross-int. 36. How many shares of stock are there, and how was it distributed when or about the time when the company was formed?

Ans. There were 5,000 shares. After selling twelve thousand five hundred dollars worth, it was divided between the four original owners. Dr. Cummings had five-eighths; Mr. Joseph Gavett had one-eighth; H. D. Osgood had one-eighth; and G. H. P. Flagg one-eighth. Mr. Osgood and myself, as partners, divided the one-fourth interest which belonged to me, as I have before stated.

Cross-int. 37. When was this division of stock made, and who were present or consulted in reference to it?

Ans. This agreement was in writing, and was drawn up, and Cummings subscribed with the rest of the original owners to the whole number of shares, less what was sold. The company was formed in July, '64.

Cross-int. 38. (De bene esse.) What was done by Cummings, if anything, between the years 1856 and 1863, in reference to obtaining a patent for the invention claimed by him and the subject of this suit?

Ans. During our partnership he spoke frequently of his patent, and of Mr. Lincoln's neglect.

(Objected to as irresponsive.)

Dr. Cummings left the office frequently with the remark that he was going down to see Mr. Lincoln—and I have frequently seen him in company with him.

Cross-int. 39. (De bene esse.) Did Dr. Cummings ever describe to you the process of preparing hard rubber plates and mounting artificial mineral teeth thereon; and if yea, when did he first give you such description, and what was it?

Ans. He did, along in the early part of '55, during our conversations in Mr. Cooke's office. He explained it all as near as he could in those days. The impression was to be taken the same as any other plate,
376 the teeth adapted to the mouth the same as if he was going to set them on plate. These were arranged on a wax plate instead of metallic, then the top was to be imbedded in plaster, that is, the upper side, then it was to be covered with plaster, then opened, the wax removed, and rubber placed the same as the wax in the cavities, and then vulcanized.

Cross-int. 40. (De bene.) Did you see a plate prepared in the manner described by Dr. Cummings, as you have stated, as early as the year 1855; and if so, where, when, and by whom?

Ans. I did; in Cummings & Flagg's laboratory, very soon after our partnership in November, '55. It was prepared by Mr. Bevin, Dr. Cummings being present.

Cross-int. 41. You have stated that the first set of teeth in hard-rubber plate seen by you, was worn by B. F. Cooke. When did you first see such set?

Ans. The first set I ever saw was from a natural mould, I should judge—gum teeth, in the latter part of 1854. Mr. Cooke's was the first set I ever saw worn.

Cross-int. 42. In whose possession was the set that you saw in the latter part of 1854?

Ans. Mr. Cooke's.

Cross-int. 43. Do you know where that set now is?

Ans. I do not. I threw away as many as two quarts of plates with and without teeth, soon after going in with Dr. Cummings.

G. H. P. FLAGG.

Deposition of Julius C. Hurd.

Int. 1. State your name, age, residence, and occupation.

Ans. Julius C. Hurd; fifty-eight years of age; I reside in Bristol, Connecticut; and am a yeoman.

Int. 2. Do you know Dr. John A. Cummings, of Boston, dentist; and if so, how long have you known him?

Ans. I have been acquainted with him since 1852 or 1853. I have not seen him for the last six or eight years.

377 Int. 3. Was Mr. Frederick A. Bevin, formerly of New Haven, and now deceased, connected with you in family; and if so, how?

Ans. He and I married sisters.

Int. 4. Who introduced him to Dr. John A. Cummings, if anybody?

Ans. I introduced him.

Int. 5. Please state the circumstances which led to your doing so, and the time when they occurred?

Ans. Dr. Cummings was doing dental work for my family, I think, in 1853. About that time Mr. Bevin had visited me, and brought some India-rubber tooth filling, and wished me to introduce it to dentists in Boston, and see if I couldn't procure an outlet for it. I exhibited it to Dr. Cummings. He thought favorably of it, and agreed to make the trial. At that time, or very near that time, he made mention that he himself (objected to) was engaged in getting up an India-rubber plate for teeth, and wished to know whether this brother-in-law of mine would not be a good man to experiment for him. At his request, I wrote to Mr. Bevin, and stated as clearly as I could what Dr. Cummings wished him to do. Mr. Bevin stated that he thought he should be able to do it, and the Dr. could explain precisely what he wanted done. I made known the answer to Dr. Cummings. He requested me to request Mr. Bevin to immediately come on to Boston, saying that he would pay all his expenses, and satisfy him as to his time. Mr. Bevin came, and I made the introduction.

Int. 6. In what year was this?

Ans. Late in 1853 or early in 1854.

Int. 7. Was it before or after Mr. F. A. Bevin went out to France?

Ans. I have not a doubt but what it was before.

Int. 8. Will you give as nearly as you can the description, if any, which Dr. Cummings, when he first mentioned the subject to you, gave to you of the rubber plates for teeth in which he stated he was interested?

(Objected to.)

Ans. I don't think I should be now able to give a detailed account of it.

Int. 9. Did Dr. Cummings speak of the rubber plates for teeth as invented by any one; if so, by whom?

(Objected to.)

Ans. He spoke of it as his own invention.

378 Int. 10. Up to this time had you known Mr. Bevin long; and how long and how intimately?

Ans. I had been acquainted with him from 1835 or 1836. Saw him every few months. Was quite well acquainted with him.

Int. 11. Was he accustomed to talk with you in regard to any new ideas or plans or experiments he had from time to time?

Ans. He did so, often.

Int. 12 Until he was so made acquainted with Dr. Cummings through you, as you have testified, did you ever know or hear of his having made, or tried to make, plates of hard rubber for the insertion of artificial teeth?

Ans. I have no knowledge of having so heard him.

Cross-examination:

Cross-int. 1. Have you any interest, direct or indirect, in the stock of the Dental Vulcanite Company, the plaintiff in this cause?

Ans. I have none.

Cross-int. 2. How do you fix the date of introducing Mr. Bevin to Dr. Cummings, as was fixed in your direct examination?

Ans. In part from general recollection, and in part from data, knowing that it was previous to the time when he went to France.

Cross-int. 3. When did he go to France?

Ans. In 1854.

Cross-int. 4. Where did you reside when you made the introduction?

Ans. In Medway, Massachusetts.

Cross-int. 5. When did you leave Medway?

Ans. I *I* think in the spring of 1858.

Cross-int. 6. Where did Dr. Cummings reside when you made the introduction?

Ans. I think in Boston. At any rate his office was on Tremont st., in Boston.

Cross-int. 7. Where was the introduction made?

Ans. At his office.

Cross-int. 8. Was anybody present beside Dr. Cummings and yourself; if so, who?

Ans. I recollect of no other person being present.

Cross-int. 9. What has become of the letters that passed between you and Dr. Cummings, and you and Mr. Bevin, preparatory to this interview?

379 Ans. I could not state. They were left, I presume, at Medway. I have not seen them.

Cross-int. 10. Who first spoke to you, and when, to testify in this suit?

Ans. Mr. Bacon, I think, the treasurer of the Dental Vulcanite Company, in December last, I think.

Direct-examination resumed:

Int. 13. After Mr. Bevin returned from France was there a written memorandum of agreement drawn up between him and Dr. Cummings; and if so, state, if you know, who drew it up, and who witnessed the signatures?

Ans. There was a contract drawn up. I drew it up, and witnessed the signatures.

Cross-examination resumed:

Cross-int. 11. Where was this done?

Ans. I think at his house—Dr. Cummings'—part of it at all events. His house was in Boston, on Washington, at the corner of some other street. The signatures might have been signed at the office, or at the house; I can't say which.

And further saith not.

JULIUS C. HURD.

Deposition of W'm L. McDonald.

Int. 1. State your name, age, residence, and occupation.

Ans. W'm L. McDonald; age, 30; residence, Boston, Mass.; occupation, dentist.

Int. 2. Were you ever employed as assistant dentist by Dr. J. A. Cummings of this city; if so, where, and when was it, and for how long?

Ans. I was employed by him at 23 Tremont street, Boston, in the early part of 1862, for about six months.

380 Int. 3. When you so went into his employment how long had it been since his resuming dental practice?

Ans. He had just resumed it; I commenced with him.

Int. 4. Did you, while with him during this employment, hear him say anything about the use of hard-rubber plates for artificial teeth, as to who invented them, and as to the obtaining of a patent for them; if so, state what.

(Objected to.)

Ans. I heard him say that he was the inventor, and that he had applied for a patent and had been rejected, but that he expected to get it yet at some future time.

Int. 5. What, if anything, did you see him do with reference to the use of any such hard-rubber plate? Please state the circumstances, including what Dr. Cummings said at the time in explanation of what he was about.

(Objected to.)

Ans. At the time rubber-work was about being introduced he told his partner, Dr. Wendell, that rubber-work he expected would be generally used, and that he intended to lead off, as he expressed the idea. He got Dr. Wendell to take an impression of his (Dr. Cummings') mouth, in order that he might have the first set made in his office. I suppose he meant, particularly, before Dr. Flagg, who had recently dissolved with him, and who was next door.

Int. 6. Was a hard-rubber set made from the impression so taken by Dr. Wendell?

Ans. I think not; for the reason, I think, that the following day, or very soon, we had a patient who was willing to have a hard-rubber set.

Int. 7. Did that patient have a hard-rubber set?

Ans. Yes, sir.

Int. 8. Where was it made, and under whose direction?

Ans. It was made at the office. I did all the plate-work in the office, and Dr. Cummings told me I could make it. As I knew nothing about the rubber—never had seen any made—I told the doctor we had better get some person to give me some instruction, and a gentleman, whose name I forget, was round, employed by the Hard Rubber Com-

381 pany at the time—not in the employ of the Hard Rubber Company, I should say. I think he was going round giving instruction, and making something out of it. He made one set for us.

Int. 9. You said that during your employment with Dr. Cummings you heard him say that he was the inventor of the hard-rubber plates for artificial teeth, and that he had applied for a patent, and expected to get it yet. Did he speak of this more than once while you were with him; and if yea, how frequently?

(Objected to.)

Ans. I remember of hearing him speak of it frequently; and further, when speaking of this hard rubber, he remarked that, had it not been

for Dr. Flagg being so much opposed to it, he probably would have had the patent before that time, and added that he would have it yet.

Int. 10. When Dr. Cummings had the impression of his mouth taken by Dr. Wendell, for the purpose of leading off with the hard-rubber plate, where did he speak of having it made?

(Objected to.)

Ans. At his office.

Int. 11. And by whom, and under whose direction?

Ans. By ourselves, and under our own direction, I suppose; that was my impression. I don't know that there was anything said.

Int. 12. Why then did you need, if you did need, to obtain assistance from the travelling hard-rubber man you spoke of when you came to make the first set for a patient afterwards?

Ans. Because Dr. Cummings himself did no work, or almost none, in the office, and I had, as I remarked, almost all of the plate-work to do, and knew nothing about the rubber-work. I told Dr. Cummings that if I attempted to do the work I wanted to do it right, and have instructions to do it the proper way—the best method.

(The counsel for defendant seasonably objected to all statements by this witness of conversations or statements by persons mentioned by him in his deposition.)

Cross-examination:

Cross-int. 1. Are you a stockholder in the Dental Vulcanite Company?

Ans. No, sir.

382 Cross-int. 2. How long did you remain in the employment of Dr. Cummings?

Ans. About six months, perhaps a little less; I don't know precisely.

Cross-int. 3. During that period did Dr. Cummings give you any instruction in the method or process of making plates of hard rubber for artificial teeth?

Ans. No, I don't know that he did. I think the gentleman that made the set gave me all the instruction I needed.

W. L. MACDONALD.

Deposition of Elisha D. Tucker.

Int. 1. State your name, age, residence, and occupation.

Ans. My name is Elisha D. Tucker; age, 56; residence, Boston, Mass.; occupation, dentist.

Int. 2. Do you know Dr. John A. Cummings, of Boston, dentist; if so, how long have you known him and how intimately?

Ans. I do. Have known him, I should say, at least fifteen years. Perhaps as intimately as almost any one in the profession. I've known him very intimately.

Int. 3. Did you receive, in or about the year 1862, a letter from Dr. Cummings in reference to the hard-rubber plates for artificial teeth, then coming extensively into use?

Ans. I did so.

Int. 4. Do you know what has become of that letter?

Ans. I do not, sir. It was lost in bringing up my papers from the sea-shore, where I was spending my summer vacation, at the time the letter was received.

Int. 5. State as well as you can from recollection, so much of the contents of that letter, if any, as related to Dr. Cummings' connection with the invention in question, and his intentions in regard to a patent therefor.

(Objected to.)

Ans. This letter, I suppose, was written in a friendly way. He mentioned that he had got hold of something which he considered
383 was very valuable, and that he felt sure that he had a prior right to all others in regard to the vulcanite rubber. He merely mentioned in the letter that he was going to get out a patent—had put in a caveat and should endeavor to carry out his work—that is, obtain a patent.

(Answer seasonably objected to.)

Counsel for defendant declines to cross-examine.

ELISHA G. TUCKER.

Deposition of Joseph Gavett.

Int. 1. State your name, age, residence, and occupation.

Ans. My name is Joseph Gavett; age, 35; residence, Roxbury, Mass.; occupation, solicitor of patents.

Int. 2. Were you connected in said business with the late Mr. Ezra Lincoln, of Boston, and how long?

Ans. I was, since 1848 until his death.

Int. 3. What was your position in Mr. Lincoln's office, and what degree of knowledge had you of his Patent Office business?

Ans. After two or three years I prepared many caveats and applications for patents for him.

Int. 4. Did you have a general knowledge of the course of his Patent Office business, and of the nature and condition of the applications for patents pending in his office, including those prepared by yourself?

Ans. I did.

Int. 5. Was the original application of Dr. John A. Cummings for patent for hard-rubber plates for artificial teeth, prepared in Mr. Lincoln's office, and managed therein?

Ans. It was.

Int. 6. Who prepared it—you or Mr. Lincoln?

Ans. It was prepared by both.

Int. 7. When did Mr. Lincoln die?

Ans. In June, 1863.

Int. 8. It appears by the records of the Patent Office, that this application was finally rejected, Feb. 6th, 1856. Do you know the
384 general history of the application in the office, and the grounds of its rejection?

(Objected to.)

Ans. I know generally.

Int. 9. State whether or not Mr. Lincoln, from 1856 to his death, at any time expressed in your hearing his acquiescence in or his dissent from the justice of such rejection?

(Objected to.)

Ans. He did several times say that he thought the Patent Office ought to grant it.

Int. 10. Please state generally what Dr. Cummings did, between 1856 and the time of Mr. Lincoln's death, to advance said application before the Patent Office, and to promote the obtaining of the patent therefor?

(Objected to.)

Ans. He was frequently in the office. I should say quite importunate. I should say that he rather annoyed Col. Lincoln with his pertinacity about his case. I remember also that he used to bring in other people, to hear what the Colonel had to say about the case.

Int. 11. Did this importunity and pertinacity continue to the time of Col. Lincoln's death? If not, to what time did it continue?

Ans. Nearly up to the time of his death. I received a good share of it.

Int. 12. After Col. Lincoln's death what did you or Dr. Cummings, or both, do in regard to his application?

Ans. I prepared a new application. I did this remembering Dr. Cummings' anxiety to obtain a patent, as he frequently spoke to me about it both in the office and whenever I met him, and consequently thinking that the Patent Office, being more liberal in its decisions than *formally*, might act favorably in the case, I requested Dr. Cummings to come and see me about it.

Int. 13. What was Dr. Cummings' pecuniary condition at this time, and what arrangement, if any, did he make with you to provide for the expense of pushing the patent through?

Ans. He told me that he had no money, but that he was so anxious to obtain his rights that he would sacrifice anything to have his invention protected, and that he would try to procure money from some of his friends. He subsequently made arrangements with me to provide for the expenses. He promised me a portion of the interest and five hundred dollars in cash.

385 Int. 14. Do you hold stock in the Dental Vulcanite Company; if yea, how much?

Ans. Fifty thousand dollars' worth, reckoning the stock at par, $100 per share.

Int. 15. At how much was the patent of Dr. Cummings valued in making up the capital stock of the company?

Ans. At five hundred thousand dollars, I believe.

Int. 16. Do you believe it to be worth more or less than that sum if sustained by the courts and submitted to by dentists throughout the country?

(Objected to.)

Ans. I think it worth more.

(Counsel for defendant seasonably objected to all statements by witness of conversations or statements by persons mentioned by him in his deposition.)

Cross-examination:

Cross-int. 1. Has said company any other property besides the patent; if so, what?

Ans. I don't know.

Cross-int. 2. What is the amount of the stock of the company?

Ans. Five hundred thousand dollars.

Cross-int. 3. Was your engagement with Dr. Cummings for an interest in the invention in writing? if so, will you annex the writing or a true copy to your answer?

Ans. The arrangement was not in writing.

Cross-int. 4. Was anything, and if so, what, in writing; and if so, will you annex the writing or a true copy thereof?

Ans. There was no arrangement in writing at that time?

Cross-int. 5. Was there, at any time, any writing between you and Dr. Cummings for an interest in his invention for aiding him in procuring a patent?

Ans. He made an assignment to me subsequently of one-eighth interest to the invention.

Cross-int. 6. Was said assignment recorded in the Patent Office, and

if not, will you annex a true copy to your answer; and was that the only writing between you upon the subject?

Ans. I don't remember whether it was recorded or not. I think the Dental Vulcanite Company have the original, and doubtless it
386 can be procured. There was no other written agreement between us.

(The counsel for complainant stating that he has the original assignment in his possession, and that he will produce it as part of the case, the call for a copy is dispensed with.)

Cross-int. 7. What was Cummings' pecuniary condition, if you know, in 1855 and 1856?

Ans. I should suppose that he was in fair pecuniary condition.

Cross-int. 8. Did you propose the new application in 1864 on your own motion, or at the special instance of Dr. Cummings, requesting you to do so before you had done it?

Ans. At Dr. Cummings' instance.

Cross-int. 9. When did Mr. Lincoln say for the last time, in your hearing, that the office ought to grant a patent on the application of 1855?

Ans. I couldn't state precisely. It was quite frequent after he had been bored, as Col. Lincoln expressed it, with Dr. Cummings, and after the times when I had met the doctor in the street, and reported to Mr. Lincoln what he said

Cross-int. 10. What has become of Dr. Cummings?

(Objected to, as conveying an imputation that Dr. Cummings is inaccessible or secreted, contrary to the fact, as known to those defendants.)

Ans. Well, I am not his guardian, but I meet him occasionally.

Cross-int. 11. Do you think he needs a guardian?

(Objected to.)

Ans. Well, I don't know but you might possibly think so.

Cross-int. 12. What fact do you know about Dr. Cummings that makes you doubt whether or not I should think he ought to have a guardian?

(Objected to.)

Ans. Nothing but your question asking me what had become of him.

Cross-int. 13. Has the plaintiff's patent in this suit been reissued since the commencement of the suit? and if so, when and how many times, and by what patent agent, if you know?

Ans. So far as this suit is concerned, I don't know. I know it has been reissued twice. The dates I don't remember, excepting that one was June, '64, by myself.

Cross-int. 14. Did you have any, and what assistance from Dr.
387 Cummings in preparing and obtaining said reissues?

Ans. I consulted with him about his invention.

Cross-int. 15. Did you prepare the amended specification under the direction of Dr. Cummings, or did he examine it and understand it, and swear to it of his own motion or at your request?

Ans. It was advised that the patent should be reissued, and in preparing the application for the reissue I obtained all the information I could from Dr. Cummings, and he appeared to understand the nature of it. I think the petition was signed by Dr. Cummings, and also by the Dental Vulcanite Company; also that it was sworn to by Dr. Cummings. Certainly at my request he swore to it, and as a matter of necessary form.

Cross-int. 16. Did you obtain from Dr. Cummings all the information contained in the amended specification—more than was contained in the original specification upon the subject of the patent?

Ans. I and others did.

Cross-int. 17. State how you know what others did in the matter, and who the others were.

Ans. The counsel for the Vulcanite Company, Mr. Causten Browne and myself, had interviews with Dr. Cummings, and thus obtained the information. So far as I am concerned, that is about all the information I obtained. What Mr. Browne obtained, I can't say. I can't name any others now.

Cross-int. 18. State whether you or any other person to your knowledge, for the purpose of making the amended specification, consulted or examined the affidavits filed by defendant in this cause, or any and what book or publication upon the application of hard-rubber to dental uses?

Ans. I did not. I don't know what others might have done.

Cross-int. 19. Did Dr. Cummings, at any time, give you to understand that he was acquain'ed, at the time of his first application for a patent, with the detailed process described in the amended specification for making hard-rubber plates for the insertion of artificial teeth.

Ans. I thought at that time that he was very well posted in all relating to that process, and knew also that he had at least some friends who were engaged in the rubber manufacture. I mean by "that
388 time" the time of his first application. (It being suggested by counsel for defendant that the answer is incomplete, the witness adds:) I consider it a full answer.

Direct resumed:

Int. 17. Have you any doubt that Dr. Cummings, at the time of his original application in 1855, was acquainted with the detailed process which was described in his reissue application of 1864, for making hard-rubber plates for artificial teeth.

(Objected to.)

Ans. I have no doubt of it whatever.

Cross-resumed:

Cross-int. 20. Why have you no doubts upon the matter inquired about in the last resumed direct interrogatory?

Ans. First, because he talked fully about it at the time of his first application; second, that he didn't appear to think of anything else, and third, because he showed me some very nice specimens at that time.

Cross-int. 21. What has become of said specimens?

Ans. I don't know who has them now. I have seen them since. Dr. Cummings gave me one at the time of renewing his application. I have seen another in the hands, I think, of Dr. Flagg. I think I may have seen them since but when or where I cannot say.

Cross-int. 22. Who made such specimens, if you know?

Ans. Dr. Cummings told me that he made them. That is all I know upon the subject.

Cross-int. 23. When you and Mr. Lincoln proposed the original specification for the application of 1855, did you know all the detailed process of preparing hard-rubber plates for the insertion of artificial teeth, described in the amended specification of the last reissue of said patent to Cummings?

Ans. I think I did.

JOSEPH GAVETT.

389 *Deposition of James D. Martin.*

Int. 1. State your name, age, residence, and occupation.

Ans. My name is James D. Martin; age 35; residence, Boston, Mass.; occupation, book-keeper in Hide and Leather Bank.

Int. 2. Are you a nephew of Dr. John A. Cummings?

Ans. I am.

Int. 3. How frequently do you see him and talk with him?

Ans. Almost every day.

Int. 4. What is Dr. Cummings's state of health?

(Objected to.)

Ans. Poor, sir, very.

Int. 5. How is it as compared with what it was six months ago?

(Objected to.)

Ans. I think he is worse than he was six months ago.

Int. 6. Please state what, if anything, you have observed in your conversations with Dr. Cummings indicating his conditlon of mind?

(Objected to.)

Ans. Well, in any consecutive conversation with him he evinces great absence of mind; don't seem to remember what he has said or what anybody has said to him from time to time.

Int. 7. Do you mean that this is the case as to what may have been said by him or to him in the course of the same conversation?

Ans. Yes, and at other times too.

Int. 8. In regard to this condition of mind is Dr. Cummings better or worse than he was six months ago?

(Objected to.)

Ans. Worse.

Int. 9. Is he now confined at home, sick?

Ans. Sick abed; yes, sir.

Int. 10. Within the last six months he has been, generally speaking, about town and attending to ordinary business?

(Objected to.)

Ans. Well, he has been out, but half of the time hasn't been able to.

Int. 11. In the six or eight years preceding the grant of Dr. Cummings's patent in 1864, for hard-rubber plates for artificial teeth, did you talk with him from time to time, or hear him talk in regard to the application he had made for such patent, and in regard to his
390 intentions or purposes as to the same, and his claim of invention therein, if any; and if so, how frequently did you talk with him, or hear him talk upon these subjects?

(Objected to.)

Ans. I've heard him talk quite frequently. He would say he didn't see why Mr. Lincoln didn't attend to the matter; that he felt that justice wasn't done his case. About three years ago, he started for the West, I know, and said he was going by way of Washington, to see if he couldn't stir the matter up, and do what Lincoln hadn't done. When any matter in reference to rubber came up, it always started him; he was always alive about it. Either joking or in earnest, he'd always say he'd be a rich man yet, if he got his patent through.

Cross-examination:

Cross-int. 1. Where were you born, where have you lived, and in what pursuits have you been engaged?

Ans. I was born in Boston, have lived in Boston, and have been for eight years in the Hide and Leather Bank. Previous to that, I was in the Boston Locomotive Works, I think for four or five years. Previous to that I was studying, intending to go to college, but my health broke down.

Cross-int. 2. Are you a stockholder in the Dental Vulcanite Company?

Ans. No, sir.

Cross-int. 3. Where is Dr. Cummings now residing, and how recently have you seen him?

Ans. He resides in Boston—I saw him on Tuesday last.

Cross-int. 4. Where did you see him?

Ans. At my house.

Cross-int. 5. Where is Dr. Cummings's house, and where is your house, when you say you saw him last Tuesday?

Ans. Dr. Cummings's house is No. 1 Asylum street. My house is 615 Tremont street—not more than a quarter of a mile apart.

Cross-int. 6. It is within your own knowledge that Dr. Cummings is to-day sick abed?

Ans. My knowledge is of last evening. I then saw him abed. He seemed very sick indeed, and his wife stated that she almost
391 thought him dangerous. I was sent for to come over there last evening.

Cross-int. 7. What physician, if any, is attending upon Dr. Cummings?

Ans. I couldn't tell you, for I didn't ask.

Cross-int. 8. You say, speaking of Dr. Cummings, that his condition of mind is worse than it was six months ago. How do you know this?

Ans. From conversations with him.

Cross-int. 9. Do you know that Dr. Cummings has done business within the last month, trading, and managing his pecuniary affairs?

Ans. All I know is that he has sold a horse and buggy; that's all the transactions I know of during the last month.

Cross-int. 10. It is not within your knowledge that he has done other business similar to that inquired about in the last question since May 1st, last?

Ans. No, sir, it is not; I couldn't tell.

Cross-int. 11. Have you not within the last sixty days repeatedly seen Dr. Cummings in the business streets of Boston, and in conversation with various persons?

Ans. No, sir; for the reason that I never left the bank, so long as this, during business hours, so long as I have been in it.

Cross-int. 12. State whether or not Dr. Cummings has done business at your bank?

Ans. He has.

Cross-int. 13. How recently and of what nature?

Ans. I think it's about a year ago. He deposited about eight hundred dollars and drew it out in small amounts.

(Counsel for defendant seasonably objected to all statements by the witness of conversations with other persons.)

JAMES D. MARTIN.

Deposition of Josiah Bacon.—July 14, 1865.

Int. 1. State your name, age, residence and occupation.

392 Ans. My name is Josiah Bacon; age, 33 years; residence, Brookline, Mass.; occupation, treasurer of the Dental Vulcanite Company.

Int. 2. Did you visit W'm A. Bevin, at Greensville, Canada West, after the commencement of this suit, with reference to the procuring of testimony, &c., bearing upon the alleged prior invention of F. A. Bevin?

Ans. I did.

Int. 3. How did you learn his address?

Ans. By inquiries here in Boston. I inquired of dentists and others. Dr. Lesuer and Dr. Codman, were among the parties inquired of.

Int. 4. When did your first interview with W'm A. Bevin or his brother, if any, take place?

Ans. Early in January last, at Greensville. Both of the brothers were present; one of them is since dead.

Int. 5. When did you first know of any agreement between Dr. Cummings and F. A. Bevin relating to the business of hard-rubber dental plates?

Ans. My first definite knowledge was on finding the contract between the parties among certain papers of Mr. Bevin at Greensville on the occasion referred to.

Int. 6. Why do you say definite knowledge? Had you any and what knowledge upon the subject previously?

Ans. I heard from Dr. Cummings that he had some arrangement or contract with Bevin, and I think it was referred to in letters of Bevin which I found among Dr. Cummings's papers here.

Int. 7. Did you have conversation with W'm A. Bevin upon the subject of his father's connection with the hard-rubber plate invention before he turned out to you his father's papers you have mentioned?

Ans. I did; quite a lengthy conversation.

Int. 8. In the course of that conversation did W'm A. Bevin state to you the facts as he remembered them in regard to his father's connection with the invention or business referred to and in regard to the question of the right of invention therein?

Ans. He did.

393 Int. 9. In what particular, if any, did the facts, as he gave them in that conversation, differ from the facts as he gave them in his deposition in New York last week?

(Objected to.)

Ans. I do not at this moment recall any material difference.

Int. 10. Did you then, or at any time, before or since, have any reason to suppose that said Bevin had ever given anybody any different account, except so far as the last answer in his deposition in New York then indicated?

(Objected to.)

Ans. No, sir. I had none.

Int. 11. Who, if any person, had the exclusive charge of all communications between the Dental Vulcanite Company or Dr. Cummings and W'm A. Bevin or his brother, upon the subject of any facts they knew or any testimony they could give in relation to the question of invention in this case?

Ans. I had the exclusive charge.

Int. 12. Was anything said between you and W'm A. Bevin, before his father's papers were turned out and overhauled, at the visit above mentioned, upon the subject of any written agreement which might exist between his father and Dr. Cummings?

Ans. There was not, as I didn't know he held such a paper.

(Counsel for defendant states that the witness has not testified that the Bevin's papers were turned out and overhauled as supposed in the question.

Counsel for complainant refers to the answer to the fifth direct interrogatory, and proceeds with the examination.)

Int. 13. Was anything said between you and W'm A. Bevin, on the occasion referred to, prior to the finding of the contract among the

Bevin papers, as testified, about any interest which W'm A. Bevin, or any other heir of F. A. Bevin, might have in the subject-matter of this suit?

Ans. Not one word, that I remember; I think not one word.

Int. 14. When that paper was found, what, if anything, was said between you upon that subject?

(Objected to.)

Ans. I, of course, read over the paper, or contract, and Mr. Bevin inquired of me whether I judged it legally good. I told him I could not inform him on that point, and he wished to know if I thought
394 Dr. Cummings would respect it. I told him that, from my experience with Dr. Cummings, seeing him pay up old debts, I judged him honorable to the letter, and therefore thought the matter could be settled. At his request, I agreed to mention the matter to Dr. Cummings, and write to him, and afterwards did so.

Int. 15. Has the Dental Vulcanite Company given, or agreed to give, any money or stock to W'm A. Bevin, or anybody else, on account of any interest whatever of F. A. Bevin or his heirs, or has this been a personal matter of Dr. Cummings?

Ans. Entirely a personal matter of Dr. Cummings. But few of the company, I presume, are to-day aware of this contract between the parties.

Int. 16. Have you in your possession, and will you produce, as an exhibit in this case, the paper so found by you among the Bevin papers, at Greensville, and delivered to you by William A. Bevin as the original contract between his father and Dr. Cummings?

Ans. I have it, and produce it. It is marked "Complainants' Exhibit, 13."

Int. 17. How long have you known Dr. Cummings?

Ans. I was introduced to him about July 1st, 1864.

Int. 18. Have you since that time had frequent conversations with Dr. Cummings upon various subjects?

Ans. I have.

Int. 19. State what, if anything, you have observed on the part of Dr. Cummings in such conversations indicating the condition of his mind, particularly comparing conversations during, say, the last six months or less with those which preceded them. State fully.

(Objected to.)

Ans. He evinces absence of mind, and also an exceedingly vague memory as to any remote facts or incidents of the past. I judge his failings in this respect to be on the increase. He is subject to some periodical attacks that seem to come on more frequently than previously, and is now suffering from a similar attack.

Int. 20. Has Dr. Cummings, within the last six months, attended to matters of business? If so, to what extent, and of what nature, and under whose general advice, if any one's?
395 Ans. Dr. Cummings has scarcely made a single transaction without first referring to me or to a Mr. Randall, a personal friend of his—to me more particularly. He attempted to sell his homestead at Dunstable, but was particular to fix the day of sale one on which I could go up there and attend to it. I raised the money for him to pay off a mortgage on said homestead, and the money laid in the bank, losing quite a little interest, waiting a day when I could go to Tyngsborough and see the mortgagee, and pay off the mortgage and arrange the papers. He would not trust himself. The settlement of the contract with Bevin was entirely placed in my hands as his agent.

At his request, I even went with him to see the auctioneer, to arrange to sell a carriage at auction; and a horse he sold a few days since was sold through me to Dr. Flagg. This very morning a gentlemen in Boston, who was desirous of purchasing of Dr. Cummings some stock in the Dental Vulcanite Company, sought me, stating the purchase would be completed, if I would recommend it to the doctor, he felt satisfied.

Int. 21. In March last Dr. Cummings signed and made oath to an amended specification for reissue of his hard-rubber patent, in which he described the method of preparing the hard-rubber plates and mounting the teeth therein. Do you know how much examination Dr. Cummings gave to the contents of this amended specification before doing so?

Ans. Yes, sir; I do. I know he gave a great deal of examination.

Int. 22. You have said that Dr. Cummings, in your conversations with him within the last six months, evinced an exceedingly vague memory as to any remote facts and incidents. To what sort of facts or incidents do you refer? Will you state whether you believe him to have had, at the time of executing that reissue specification, a clear recollection of the original method of putting up the hard-rubber plates, as practised by him, or under his direction; and if yea, why you so believe?

(Objected to.)

Ans. I refer particularly to matters of no very great moment. The matter of the specification being on a subject almost second nature to him, and his one idea for so many years, I think his recollection would be clear.

396 Int. 23. Does the Dental Vulcanite Company itself manufacture and sell hard-rubber dental plates?

Ans. Yes, sir; it does through its agents.

Int. 24. Who are its agents for this purpose?

Ans. Soon after the company's organization, Messrs. Flagg & Osgood were appointed the company's agents for manufacture, to whom direct applicants to the company have been generally referred by me.

Int. 25. Were Messrs. Flagg and Osgood so appointed before the commencement of this suit?

Ans. They were, before this suit was dreamed of.

Cross-examination:

Cross-int. 1. Were Flagg & Osgood appointed agent' of the company by writing? If so, can you produce said writing, or a true copy, and annex it to your answer?

Ans. They were appointed in writing, and I can produce a copy of the record. I will produce it, to be marked "Com. Ex. 14."

Cross-int. 2. How were said agents to manufacture hard-rubber plates for mounting artificial teeth for the corporation plaintiff, and what did the corporation do with such plates when manufactured?

Ans. Parties have applied to me, as the agent of the Co., directly for for such plates, and I have referred them to Messrs. Flagg & Osgood, either by letter or verbally. Those plates were given to the parties for whom they were made.

Cross-int. 3. Has any hard-rubber plate for the mounting or insertion of artificial teeth been made by the corporation under said Cummings's patent, and put into the market as an article of manufacture for sale?

Ans. That cannot be done. Plates must be manufactured to order, in order to fit the mouth of the party applying.

Cross-int. 4. How do you know that the specification of Cummings's

invention was his second nature, and his one idea for years, as stated in substance, in your direct examination?

Ans. I said the subject was his second nature and one idea for years. I know that from his own statements to me and statements of others.

397 Cross-int. 5. How do you know what examination Cummings made of the amended specification for his reissued patent?

Ans. I saw him examining it, I think, and dictating it, and had general knowledge of his being so engaged. I think Dr. Flagg was also present at the time when he was engaged upon the subject.

Cross-int. 6. Why was Dr. Flagg present, and what did he do, if you know?

Ans. I was not present myself long enough to state exactly what he did; but I know of Cummings dictating and explaining to Flagg the manner and way in which he, Cummings, performed the thing some time ago—years ago. Why Flagg was present I do not know.

Cross-int. 7. Had you no interest of your own to secure or subserve in looking after Cummings' affairs, as testified by you in your direct examination?

Ans. I made no charge to Cummings for services rendered, nor did I intend to. I acted as his agent in those matters to oblige him, and merely in a friendly way.

Cross-int. 8. Had you no interest, direct or indirect, of a pecuniary character in the subject-matters of said transactions?

Ans. I had no pecuniary interest, as I understand the question.

Cross-int. 9. What is your relation to Cummings—merely that of friendship, or is it of a business character?

Ans. Only of friendship. I hold no power of attorney from him; no business appointment other than acting as agent, if requested, at any time.

Cross-int. 10. Why did you inquire for W'm A. Bevin at all?

Ans. Because I presumed he could give information regarding his father's relations, etc., with Dr. Cummings.

Cross-int. 11. Why did you want such information?

Ans. With the view of getting a true history of this invention in reference to this suit.

Cross-int. 12. How and when did you first know that W'm A. Bevin could give you such information?

398 Ans. It is utterly impossible for me to tell whether any one told me so, or whether I judged it from examination of Dr. Cummings' papers and the Dr.'s statements. As near as I can remember, it was about the time I commenced looking up information and evidence for this suit.

Cross-int. 13. Was it before or after this suit was commenced?

Ans. I think immediately after, although, still, his name might have been mentioned to me before, as I made some inquiries as to the early history of this invention for my own personal gratification.

Cross-int. 14. Was it before or after you knew the contents of the defendants' affidavits filed in the case?

Ans. I think before.

Cross-int. 15. Can you fix the date of your first interview with said Bevin? If yea, do so as nearly as you can.

Ans. It was in January last, I think, and I will fix the exact day by consulting my books. I think I have a memorandum of my expenses, by which I can fix it.

Cross-int. 16. Did you find the contract between Cummings and F. A. Bevin, deceased, at your first interview with his said son?

Ans. I think it was. I think I did.

Cross-int. 17. How many interviews, and when and where, did you have with said W'm A. Bevin prior to March 15th, 1865, the date of the receipt of five hundred shares in capital stock of the pl'ff corporation entered on said agreement?

Ans. I had two interviews, both in Canada. The third interview was at this date when this receipt was given.

Cross-int. 18. Was Dr. Cummings present at either; and if so, which interview?

Ans. He was present at neither interview.

Cross-int. 19. When, where, and for what purpose, if any, did you first become acquainted with Dr. Cummings?

Ans. I met him first in Boston early in July, 1864, as testified. I was introduced to him for the purpose of assisting him and others in drawing up the papers necessary for incorporating the Dental Vulcanite Company.

Cross-int. 20. Had you any knowledge or information of Dr. Cummings' invention prior to his application for a patent in 1864?

Ans. I knew of the invention, but not of him as the inventor. I did not know who was the inventor.

399 Cross-int. 21. Who originated the Dental Vulcanite Company, if you know?

Ans. I cannot give the names—I do not know.

Cross-int. 22. Who negotiated the purchase of Dr. Cummings' patent for said company, if you know?

Ans. I do not know. The negotiation was undertaken before I became acquainted with it. I merely acted in drawing up the papers necessary to carry it out, &c.

Cross-int. 23. Did said company pay Dr. Cummings anything for the assignment of his patent to the company?

Ans. I presume they did. The question is rather blind to my mind.

Cross-int. 24. State what they paid, if you know; and if you do not know, state why you presume that they paid anything.

Ans. To answer that question will necessitate my giving a concise statement of the facts concerning the formation of the company, which I am ready and willing to do. When I first took hold of the matter I found that Cummings had given a previous conveyance of certain interests in said patent, previous to its issue, for money advanced and services rendered by Messrs Flagg, Osgood and Gavett; and, when the company was formed, these gentlemen drew their respective interests in said patent in a proportional amount of the company's stock. I knew from Cummings' statements that he had received some considerable sums from Flagg and others, and this was the cash he received. The balance of his interest in the patent he drew in a proportional amount of the stock of the company as payment.

Cross-int. 25. How many shares of the stock did Cummings have under the original arrangement spoken of in your last answer?

Ans. About three thousand shares, the whole number being five thousand.

Cross-int. 26. Did not Cummings have in his possession or control his part of the agreement with Bevin?

Ans. I found among his papers a copy, or what purported to be a copy, of said contract; but whether it was ever carried out, or deemed to amount to anything, I did not know. I asked Dr. Cummings,

400 and he said, after so long a lapse of time, he could not tell whether Mr. Bevin had a copy, or whether the matter had died out with him.

Cross-int. 27. State, as nearly as you can, when you found said copy among Cummings' papers, and had said conversation with Cummings about it.

Ans. I cannot give you the time; I was engaged from time to time in overhauling voluminous papers of Cummings, and found various memoranda of agreements with sundry parties, while so engaged.

Cross-int. 28. Was it before or after the formation of the company?

Ans. After; I saw none of Cummings' papers before.

Cross-int. 29. You have stated, in your direct examination, in substance, that you had the exclusive control of the intercourse between the said Cummings and W. A. Bevin relative to said contract; how do you know that Cummings had no intercourse with young Bevin relative to said contract, unbeknown to you, and what power, if any, had you to control the matter?

Ans. I know simply from belief of Cummings' word, and his statement to me that he wished me to assume the settlement of the matter.

Cross-int 30. Did you offer W. A. Bevin, or did he request you, to use your efforts to make said contract available to his father's family, for as much as you could in the stock of said company, or money, or value of any kind.

Ans. Mr. Bevin simply asked me to notify him whether Dr. Cummings was disposed to recognize the validity of that contract with his father. I did so, and hence arose the negotiation which led to its redemption.

Cross-int. 31. Was said negotiation brought about by your efforts, and, if so, were such efforts, directly or indirectly, for the benefit of the plaintiff company?

Ans. The negotiation undoubtedly was brought about by my efforts, but I judge Mr. Bevin and Dr. Cummings to be the parties directly profiting by my efforts. I do not see that the company were in any way affected by my efforts.

Cross-int. 32. Did not Mr. Hurd at his first interview with you, testified by him in this cause, give you information of the contract between Bevin, deceased, and Dr. Cummings?

Ans. I do not remember that he did.

401 Cross-int. 33. What information did he give you relative to the connection of said Bevin with Dr. Cummings and the invention patented to him?

Ans. He stated to me that he introduced Messrs. Cummings and Bevin to each other, and stated substantially the same in effect as the deposition already given by Mr. Hurd which I heard.

Cross-int. 34. Can you say positively that he made no allusion to a contract between Bevin and Cummings as drawn up and witnessed by himself?

Ans. I cannot say that he did or did not.

Cross-int. 35. Have you the keeping and control of the papers belonging to the corporation, which were obtained from the effects of F. A. Bevin, deceased, or from Dr. Cummings?

Ans. I think I gave the whole budget to Causten Browne, esq., one of the attorneys in this case.

Cross-int. 36. Were you present at the examination of W. A. Bevin, executor of F. A. Bevin, in this cause at New York; and if so, did Mr. Browne put in to the cause, as a part of the cross-examination of the

said W. A. Bevin, or as part of your own examination-in chief in this cause, all the papers, contracts, letters, and other things obtained from the effects of said F. A. Bevin, deceased; if not, specify, if you can, what is left out?

Ans. I kept no list of the papers handed to him that I remember, therefore I have no reason to judge that he did not. I presume he did put them all in.

Cross-int. 37. Can you ascertain whether all of said papers have been put in to this cause as indicated in the last cross-interrogatory; and, if not so put in, will you specify, in answer to this question, what is left out?

Ans. I will endeavor to ascertain, and so specify.

Cross-int. 38. Have you ever seen or had control of any of the letters referred to in the letter of W. A. Bevin to Dr. Salmon, dated December 5th, 1864, put into this cause by defendant, to wit: 1st. The letter written by said Hurd to said W. A. Bevin, relative to specimens of
402 hard-rubber dental work shown to said Hurd by F. A. Bevin, and shown by said Hurd to said Cummings. 2d. A letter from said Hurd to said F. A. Bevin, dated November 4th, 1853. 3d. A letter from said Hurd to said F. A. Bevin, dated November 8th, 1854. 4th. A letter from said Cummings to said F. A. Bevin, dated November 27th, 1854. 5th. A letter from said Hurd to said F. A. Bevin, dated March 17th, 1855. 6th. A letter from said Cummings to said F. A. Bevin dated July 21st, 1855. And if so, where are said letters, and can you and will you annex them, or any of them, to your answer to this interrogatory?

(The counsel for complainants objects to the introduction in evidence of the letters called for by the question, unless the whole of the correspondence between Mr. Hurd, Mr. Bevin and Dr. Cummings not heretofore introduced in evidence be put in, and he now tenders such remainder of correspondence for that purpose.

Counsel for defendant requests that the witness answer the last question and then leaves it to the option of the plaintiff to put in any other correspondence indicated in the suggestion of plaintiff's counsel if he desires so to do.)

Ans. I cannot say whether I have seen or had control of the letters referred to or any of them. I handed a large budget of papers and letters, relative to this case, to my counsel, and the letters referred to may be among them or may not.

(At this point the witness having received from his counsel all the letters called for by cross-interrogatory 37, here puts them in, in answer to said question, marked Complainant's Exhibit, "15," "16," "17," "18," "19," "20," "21," "22," "23," "24," "25," "26," "27," "28," "29," "30," "31," "32," "33," "34," "35," "36," and "37," respectively.)

Cross-int. 39. Did you not receive and read in whole or in part the letter referred to under the third head of the cross-interrogatory No. 38, written by J. C. Hurd, and addressed "Friend Bevins," and dated "Medway, November, 8th, 1854," after said cross-interrogatory No. 38 was put and read to you, and before you gave your answer thereto?

Ans. I cannot say positively that that was the letter, as I had
403 not observed the date. A document or letter or paper was put into my hands, and very shortly withdrawn from me before I could fairly identify what it was.

Cross-int. 40. Read said letter and state whether you have not to-day previously read some portion or the whole of the same?

Ans. I took the letter in my hand mechanically, and was running my eye over it, attempting at the same time to listen to the discussion

going on between the counsel, so that I really could not swear whether that was the letter or not, though I have no doubt that it is.

Cross-int. 41. Are you a stockholder in the Dental Vulcanite Company; and if so, of how many shares?

Ans. I am a stockholder. I hold shares of my own and shares in trust for another party, which stand in my name. I guess I hold about twenty-five shares of my own, and, I think, about five hundred shares of Dr. Cummings's stock stand in my name.

Cross-int. 42. What circumstances or reasons caused you to act as trustee or agent of Dr. Cummings in the matter of holding stock in the Dental Vulcanite Company?

Ans. A certificate of 1,000 shares, I think, was transferred by him to me for me to draw from for some stock sold on his account. This amount referred to is the balance in my hands belonging to him not happening to have been transferred back.

Cross-int. 43. Have you been engaged in selling stock in said campany for and on account of Dr. Cummings; and if yea, to what extent?

Ans. I have sold several lots for him. I cannot give them without reference to the company's books. He would occasionally come in and ask my advice about sales of stock, and if I thought favorable and so advised him, he would sell the same. If you call this my selling, I have sold many lots for him.

Cross-int. 44. Will you examine the books of the company, prepare a statement therefrom of the quantity of stock sold by Dr. Cummings to you, the time when each sale was made, and also the quantity of stock sold by Dr. Cummings through you as his agent, or by your advice or aid, the time when each sale was made, and the number
404 of shares in each lot, and annex such statement to your deposition?

Ans. I will. It is marked "Comp't Ex. 38."

Cross-int. 45. After the assignment by Cummings, or other parties owning the same, of the patent to said Cummings, dated June 7, 1864, to the Dental Vulcanite Company, and previous to the first reissue of said patent to said Cummings in January, 1865, was there any conveyance, assignment, or transfer of the interest of said company in the patent of June 7, 1864, to said Cummings; and if so, what?

Ans. No, sir.

Cross-int. 46. Has there been any conveyance or transfer of the first reissue patent by Cummings to the Dental Vulcanite Company?

Ans. No, sir.

Cross-int. 47. Has there been any written agreement between Cummings and the company affecting the title to the patent since it was first vested in the company; if yea, will you annex it or a true copy to your answer to this interrogatory?

Ans. There has been no such agreement, either verbal or written, to my knowledge.

Cross-int. 48. From whom and when did you obtain your first knowledge of the existence of a patent, or of a claim for a patent, or of the existence of an application in the Patent Office for the invention of hard-rubber plates for artificial teeth?

Ans. It was when I first became acquainted with Dr. Cummings, in July, '64, and it was shown me by Dr. Cummings, I think.

Cross-int. 49. Is the relation you sustain to Dr. Cummings, as testified to by you, of adviser and agent in the management of his business affairs, the result of any understanding between you and Dr. Cummings;

and have any of his friends been consulted by you in reference to the matter or have any of them requested you to act in such capacity?

Ans. It is not the result of any understanding whatever. Dr. Cummings seemingly has confidence in my business capacities, and therefore, I presume, consults me generally. I think it is pretty generally.

405 I hold no real appointment of agent from him, but act merely as adviser when asked. I am under no salary from him. I act merely in a friendly way. He has never paid me any commissions on sales of stock.

Cross-int. 50. Whom did you consult or converse with in reference to the transfer by Dr. Cummings of shares of stock in the Dental Vulcanite Company to the Bevin family, after your interview at Greenville, Canada, in January, 1865, and previous to the transfer in April last?

Ans. Principally with Cummings; almost altogether with him, although a Mr. Randall, who occupies the office with Cummings, and a friend of his, also advised and consulted with us on the same point. Others may have heard it mentioned, or it may have been mentioned to others, but we three principally arranged the matter.

Cross-int. 51. Was Randall a stockholder in the Dental Vulcanite Company; and if yea, to what amount?

Ans. He was a stockholder. I can't tell to what amount without referring to the books. I think he had not then over one hundred and fifty shares.

Cross-int. 52. Did Cummings give any special instructions to you, or directions to transfer said stock to Bevin?

Ans. I acted principally under his direction, though he gave me some discretionary power.

Cross-int. 53. You say that Cummings evinces absence of mind, and also an exceedingly vague memory as to any remote facts or incidents of the past. And you say further, "I judge his failing in this respect to be on the increase." What fact in your knowledge justifies this statement?

Ans. I judge it from his general appearance, more than from isolated facts. Dates of transactions that he has given me, and which I know to be correct, he has, on questioning again, forgotten. I mean particularly dates of long since.

Cross-int. 54. Give an instance of forgetfulness in reference to dates, such as you have mentioned in your last answer.

Ans. I asked him once the date of his partnership with Dr. Flagg, and he could not give it. I found it by reference to Dr. Flagg. I asked

406 him when he occupied a certain office; he couldn't tell the date within two years. I had to find it from other sources. He could not give me the date of filing his own caveat, being simply able to state the fact.

Cross-int. 55. Can you name any other instances? If so, name them.

Ans. Many old claims and debts which his creditors thrust into his face, when they learned his prosperity, he could not tell, from memory, when they were contracted, that I might judge whether they were outlawed or not, but would simply say: "Pay them, as I wish to feel that I owe no man anything." I could name many other cases by taking time, but those are all I can name at present.

Cross-int. 56. Is it not true that Dr. Cummings has, since the 15th of April, last, been generally in such condition bodily as to be able to at-

tend upon any commissioner or court in the city of Boston, had he been required by legal process to so attend ?

Ans. His bodily health would, I judge, permit it, but his mind is very evidently not strong.

(The last part of the answer objected to as irresponsive.)

Cross-int. 57. Have you any reason other than you have previously given in this deposition for saying, as in your last answer, that his mind very evidently is not strong ?

Ans. I draw my opinion from his general conduct and appearance mostly.

Cross-int. 58. Have you acted as agent or manager of this cause for the complainant ?

Ans. I have.

Cross-int. 59. Have you had any medical or scientific examination of Dr. Cummings for the purpose of ascertaining the condition of his mind, and with special reference to his ability to give his testimonny in this cause ?

Ans. I have ; not being willing to trust to my own judgment.

Direct resumed :

Int. 26. How long since did you cause the medical examination just referred to to be made ?

Ans. The particular examination referred to I arranged for during the present week, several days ago. I have, however, called upon and seen his medical adviser, some month or six weeks ago on the same point.

407 Int. 27. Was the incapacity of Dr. Cummings as a witness discussed between you and your counsel some time before the taking of proofs in this case ?

(Objected to.)

Ans. It was.

Int 28. Was D. C. Bates, or any one else, ever authorized by Dental Vulcanite Company, or any officer thereof, to your knowledge, to offer Dr. D. S. Bartlett any share or interest in the company or its patent for any purpose whatever ?

Ans. He was not, nor any one else.

JOSIAH BACON.

Complainants' Exhibit 13.

This Article of agreement & made by & Between J A Cummings of Boston county of Suffolk & common wealth of Mass of the First part & F A Bevin of Newhaven conn Witnesseth That wheras the sd Cummings of the first part has filed a caveat preparatory to takeing Letters Pattent for India Rubber or other Elastic plates & Whereas F A Bevin of the 2d part for the sum of one dollar paid and other valuable consideration. Rendered in perfecting the same & for other services to be rendered shall be Entitled & is herby made Joint proprietor in sd Invention to the amount of One Third of Its Entire Interest & in consideration of the sd promises I the sd Cumings agree to furnish such money & means as shall be necessary to perfect sd patent & to enable sd Beven to make all Reasonable Experiments & the sd Bevins agrees in adition to the abov to improv and perfect such specimens of Work as samples as shall be desired from time to time & to give to sd Cumings the practicle results of all such experiments in sd plates & to worn others in witness

whereof We have hereunto set our hand and seals at Boston this 2d day of April A D 1855

JOHN A CUMMINGS [SEAL.]
F A BEVIN [SEAL.]

In presence off
J C HURD

408 Rec'd of John A. Cummings of Boston 500 shares of Cap Stock of the "Dental Vulcanite Co.," in full for the claim of heirs of F. A. Bevin decd. on the within contract, said Cummings having guaranteed the Same agt all assessements made and to be made on Same

WM A BEVIN
pr H. D. GOODWIN *Agt*

NEW YORK *Mch* 15, 1855.

Complainants' Exhibit 14.

On motion it was.
"Voted," "That Mess. Flagg & Osgood be authorized to manufacture Artificial Gums & Palates on behalf the Dental Vulcanite Company, as their Agents."
I attest the above to [be] a true copy of Resolution offered, at a regular meeting of the Directors of the Dental Vulcanite Co. held on Monday, Aug't 8th 1864.

JOSIAH BACON,
Clerk D. V. Co.

Complainants' Exhibit 15.

BOSTON *Nov* 12*th* 1853

F A BEVINS Esqr

DEAR SIR I have had since writing to you, & interview with Dr. J. A. Cuming 23 Tremont Row he is quite anxious to use your preperation for filling Teeth provideing it is a good thing. he will compensate you fully for all advantages that shall arise from its use. will you communicate early with him upon that subject. I should Recommend the Dr as a man above all others to make for you & him the most of it. please write either him or myself on Receipt of this & Let us know what move you will make with it I think if you have Brot it to a state for
409 use you should loose no time in Bring it forward let me urge you to give early attention to the subject of this Letter.
Truly yours,

J. C. HURD.

Complainants' Exhibit 16.

MEDWAY *Decbr* 9*th* 1853

BROTHER BEVIN: Your favor of Decbr 3d came duly to hand since then I have not been in Boston until to day I called at the office of Mr Bate's & Mr Atkinson they were both out I did not them but the samples which you sent me. I also called upon Dr Cumings he wished me to order from you 1-4 lb of your composition colour to match the tooth enclosed price $12.00 pr lb he thinks well of it & says he will do the Honorable thing by you during his experiments & so

he has tested it he will make you a generous offer for envention if it proves well have you filled a caveat or in any way secured a Patent this aught to be done can you make Teethe singly or in sets from the compound will it finish with enamel like the Tooth enclosed Please forward by Adams & Co Express one forth of a pound of your compisition to Dr. J. A. Cumings 23, Tremont St. Boston and send the bill to me & I will remit to you the money for it I would on Receipt promptly forward the above.

Touching the flax cotton you did not seem to comprehend what I wanted I stated before & now state again that the Lewiston Co have a mchine that takes flax in the straw or Broken as it comes from the west & will do & finish free from shives & at any required length at least 1500 lbs pr day & the cost of sd machines does not excede on hundred & fifty dollars all I wanted to know how many Vatts you would neede to perfect your opperations & what the cost of 1-4, 1-2 or a whole Bleach pr lb the other question was would it a flax cord or would
410 a comon cord answer or would a woolen cord be preferable if you will in a word answer the question Touching the Tooth compound & the flax cotton so that I can Judge more correctly in both matters I will be Truly obliged all well & all join in love to you & yours

Truly yours

J. C. HURD.

Complainants' Exhibit 17.

NEW HAVEN *March* '54

DR CUMINGS

DEAR SIR I send you a pacage of the Tooth filling that I have just got out. the mixture is the same in boath lots. the thin was collerd some in grinding I think the larg Cut is the best. But then it will have to be prest in a mold of suitable size and shape for Sale when in a worme or hot State. it mite be scrude up in a vice or somthing of the kind for a press I send you a few samples of hard Rubber it will yeald to a die when warm and if cooled off in that State it will keep it shape. the molder said he did not have good luck with this one, burt he could make them perfirct after trying a few times. you spoke of the labills when I was thear I have a lot on hand and will send a few. I will send the prosiss and all the pirticlars in doing the work to I C Hurd Medway who will act for me. this thin sheat was maid from the milk in 40 minutes. I shall have to call this lot eaight Dollars and hope you will be able to make a fuller trial for its worth. you can do as think best in having the compounding done hear, through Mr. Austin G Day as we are connected in the flax matter and he being a Rubber Man as we say

Yours Respectfully

F. A. BEVIN.

N. B. I send by Express the Pacage to day to your address.

411 *Complainants' Exhibit* 18.

BOSTON *Monday Oct* 4 '54

MR BEVINS

DEAR SIR Yours of the 2d inst has been reed this morning.

I have maide enquiry reletive to the Factory at Roxbury thro Mr B.

F Cooke and he thinks it has stopped so that perhaps you had better perfect the filling at New Haven also experiment upon covering the inside of a gold or silver Plate with Rubber.

the filling had better be made harder than the last—I have lost the set of Teeth you gave me will you make another & send me or I will come on at any time or if you will come on here I will pay the expense Please write me often all about mattrs

Respectfly Yurs

JOHN A. CUMMINGS

Complainants' Exhibit 19.

MEDWAY *Nov* 8*th* 1854

FRIEND BEVINS

DEAR SIR I have since seeing you had an interview with Dr Cummings he thinks well of your Filling he is desireing of seeing you & proposes to call upon you provideing you are so situated that you can make some experiments for him he, lost the India Rubber Teeth which you made for him he is anxious to perfect the scheem which he proposed to you when you last saw him I was unable to say whether your health would permit you to do the work desired for him & if it would I could not say whether you could have access to the shop as you mentioned that they had nearly or quite suspended work I wish you would

Inform him what you could do for him he is a Gentleman who
412 will be honorable with you in all he does with you he also desires to know if you saw or become acquainted with a Lawyer in France who went from Boston by the name of B F Cook Mr Cook has a Pattent for Placeing India Rubber between ship joints This leaves us & all of your friend well with our Regards for you all

Respectfully yours

J. C. HURD

Complainants' Exhibit 20.

BOSTON *Nov* 27*th* 1854

MR BEVIN

DEAR SIR. Owing to my absence in Philadelphia your letter was not rec'd by me until Saturday & I hasten to reply—

I am anxious to perfect something in the way of making Teeth & filling &c—I think perhaps it will best for you to come here at once & make some additional experiments I shall be willing to do what is right—I shall now remain at home at present—

Very Respectfully Yours in haste

JOHN A CUMMINGS

Complainants' Exhibit 21.

NEW HAVEN *Jan* 31 '55

DR CUMMINGS

I have got the Compound made it is vary good, 12lb of it in all. I shall have to run one quarter or so through the Calenders again when it is cut up. I am ready now for the Boxes labilles &c, You can
413 send me a sett of teeth to correspond with the Rubber ones if you like. Thay can be placed on the Rubber plate and wierd so as to be Strong. Thay have a process to put the Gold on now without Cop-

per it is done in New York. The Compound can be brought into markit at wonce and it will depend on you to shuve it a head, That money has not come, but I thort it would in a few Days. I must inquire how your lameness is, that has put you back in business sum. I surpose and have you got well yet. Has Mr. Hurd called on you since I left, Please write that I may know how you git a long.

Yours Respectfuly

F. A. BEVIN

Complainants' Exhibit 22.

BOSTON *Feb* 5 1855

MR BEVIN

DEAR SIR I inclose you $18.00 as you desired. I consequence of my lameness and severe cold I have not been able to do much toward the die or boxes but will soon & forward them by Express. I am glad to learn of the new improvement. Write me often & if necessary I will come on

In haste Yours

JOHN A. CUMMINGS.

Complainants' Exhibit 23.

NEW HAVEN *April* 20 '65

DR CUMMINGS

SIR I thort it best to write you. I have not had vary good
414 Success. Should have written befor but The Engine was stopt one week or more then the heater gave out and that took another week more to repar. I have tried Colors but find it will require a good deal of experimenting as well as it will on the models to make them the best way. You see I have not been able to do much, but have a chance now to do something, so that I may be able to Send some work in a short time. I have made but one Sett and that was yesterday the 19 but thay was not good. I have seen Mr. Goodyear he thinks you had better go a head and lett Mr. Lorance go for what he is worth. I have not hurd from him sence my returne but it is posable he is trying to do somthing. To carry out the matter right we shall have to be more by ourselves so menny eyes are upon us, Have you done any thing in the way of labills for the Compound if not shall I fix out somthing so as to git into markit. Will it do to wait for the work befor you git the papers out, 10 of May I think you said was the time, I will try to send befor that time, so you may have somthing to send.

Yours Respectfuly

F. A. BEVIN

Complainants' Exhibit 24.

NEW HAVEN, *June* 22, '55.

DR CUMMINGS

DEAR SIR Yours of the 20 is received. I hasen to reply. It may be for the best that you come on at wonce the buisness demands action, as I must have funds to carry on the experiments with and also some advise, as a nother party is to work at the same thing. If Dr. Cummings can not furnish the means to carry this through as our writings show, I must find some that will. Pleas write by return mail and say

415 what time I may expect you, so that I may be at home, if you come.
Yours Respectfully

F. A. BEVIN.

N B I understand Mr C Goodyear is expected on from France about the middle of July. Mr. Hurd said he saw you a short time sence. he stopt hear on his way to New York

F A B

Complainants' Exhibit 25.

NEW HAVEN *July* 21 '55

DR CUMMINGS

DEAR SIR Your favour is at hand.
I did not know what youse you wanted to make of this. As it woudd been well to sent me a Coppy of what you wanted. But I think this is all that is wanted. A plain statement. I have got some work for Electro plateing but, Mr. Goodyear has been absent for a few Days from New York. I might have gorn down but I must count the cost you know. I will hurry it up. I shall heat again the first of the week and then will send, if I have a good Bake. I have a letter from Mr Goodyear out in France he is coming on this fall and will arringe in regard to the right of the Rubber. He said he had three Sound teeth pulled for the purpose of having a full sett on rubber plate.
Yours Truly &c

F. A. BEVIN

416 *Complainants' Exhibit* 26.

NEW HAVEN *July* 28 '55

DR CUMMINGS

DEAR SIR I send you two sett of teeth.
There is but one man in New York that has done the work for Mr. Goodyear and he was not to be found. I see Mr. Batchelor of Cambridg, he said he could do it and tol me how. If I sucsead I will forward to you, as I have keept back one sett for that purpose. You will send on more teeth and moddles if you wish more work done. This small sett will look well Electroplated for a sample when I git some out. you will get the right of the Rubber of cours and it will secure to you the Buisness if the Pattent should not be secured. How is the filling going now, have you done anny thing more
Yours Truly

F. A. BEVIN.

Complainants' Exhibit 27.

NEW HAVEN *Oct* '55

DR CUMMINGS

DEAR SIR Your work has not come that you expected to send in a day or two when I was there.
I have got my Teeth fitted up first rate and I ware them with ease. We can have a Heate built, it will cost from $50 to 70 Dollars that will do the buisness right, and then if you should have a Boiler it will cost as much more. I have a letter from Mr Goodyears Son he is in

Paris. His Uncle & Mr De Forest had not arrived out. He spoke of the teeth he sent out in the spring & that his Father was much interested so as to secure the wright in Paris & in England, he will be on this fall or winter. Have you done much with the Twoth filling, tell us, What is the prospect in regard to the Pattent. I want you to send me a little funds.

Yours Truly

F. A. BEVIN.

417 *Complainants' Exhibit* 28.

NEW HAVEN *Oct* 27 '55.

DR CUMMINGS

SIR I send by Express Mr. Cooks Plate I did not have a good heat it is not hard as it should be. I will send it as it is, and if it should fitt by a little work, it mite do for a moddle and have 3 or 4 moles made from it and I will try again. The dobble teeth are firme and the front would be, if the plate was thicker in front, the baiking should not be as wide as the twoth and it should bevil in so as to form a duftale for the rubber the pieces Shoud be well secured to the twoth, as you will see some of these are loose on this sett. These pegs could be cut off if you could not mold with out, and then make the holes with an awl. I was sorry you had not 2 or 3 more moles hear to try, but this is good for the first tryal

Yours Truly

F. A. BEVIN.

Complainants' Exhibit 29.

NEW HAVEN *Novem* 12 '55

DR CUMMINGS

DEAR SIR—The pamphlet has been read, and I think there is somthing in it, but it may have a short run as it will be throne into every mans hands and being so common it will be run into the ground, Dr. Mallett is trying it hear for temporary setts. He sais the rubber is the best having a hard shell and it being in the hands of a few, less liable for imposition and to impose on the Publick. I want Dr Cummings to say what he will do Pattent or not, as I have said befor the right to use the Rubber would hold it good. I must have funds to carry out the Experiments or we shall be down, we could have had 2 or 3 hundred setts of teeth now being worn had we gorn a head at the first, so
418 much for delayes Will Dr Cummings write me and say what he will do as I am in suspense and must turne this to some account

Yours Truly

F. A. BEVIN.

Complainants' Exhibit 30.

NEW HAVEN *Nov* 21 55

DR CUMMINGS

DEAR SIR—I forward to you a sample of Gutta Percha Coulered, and shade can be given to it, Dr Slaytons price is $40 a pound I should like to make it for a good deal less. I understand he has no Pattent on the Compound and carnt git one His agent has been hear, but has done nothing Dr Mallitt is doing a little at it. There is menny dificulty to

be over come in that more than in the Rubber. We could make that stock if it was wanted at a low price and it would not interfear with our buisness of the Rubber as that will be short lived, will it not be best to go ahead at present and see what can be don. Pleas write me

Yours Trouly

F. A. BEVIN.

N B The small pece is Dr Slaytons

Complainants' Exhibit 31.

NEW HAVEN *Nov* 23 '55

DR CUMMINGS

DEAR SIR I received Mr Cook's note wish to me come at wonce to Boston I thout it mite be best to write you first and git answer so that I could come by the first Train Monday morning if you thort best, Dr Crosby is a Dentist of our City. he said to me he did not think much of this new compound for the Rubber was much the best. But if I would make a few pounds of the Gutta Percha that was right he would sell it at there Depot New York as thay should have some made If you thort best I could go down to New York and select the best that was in markit clean & prepar it for markit say 30 or 50, & it mite cost $2, a Pound or more, in this way you could head off, and put the other matter through for it is high time that sumthing was done. you may think best to have a heater made & Biler so that the work could go right forward. My coming on dont forward the buisness without action. you will send funds if it is thort best that I should go on with the matter as stated above. I shall have time to git your letter if you write befor starting.

419

Yours Truly

F. A. BEVIN.

Complainants' Exhibit 32.

NEW HAVEN *Decem 5th* '55

DR CUMMINGS

DEAR SIR I send the Compound by Express, It is not as good as I could wish you can cut out the best and I will run it over, send a sample of the thickness and the size you want the sheats out. The Factory stopt hear for a week to repar and I had to go out of the City to git the work done this is the reason of the delay. The filling is made as the Cast was I think it will bare one ¼ more Compound, try it, as it will not cromble and will better on that account I shall expect to hear from at an early date in regard to the above have you commenced on the Heator if so have it done right.

Yours Truly

F. A. BEVIN.

420 *Complainants' Exhibit* 33.

NEW HAVEN, *Dec.* 20, '55.

DR CUMMINGS

DEAR SIR I have been wating for some time to hear the result of that Compound I sent. I dont mean all the results. did it come safe, and how does it work, shall you want more. Has Codmans Gutta Percha come yet, that he sent for to Europe. How does the matter now look.

I feel some interest in the matter you know. Will you pleas write me in regard to the above and if Codman has much on hand G-Perch.

Yours Truly

F. A. BEVIN.

Complainants' Exhibit 34.

NEW HAVEN *Jan* 15, 1856.

DR. CUMMINGS,

DEAR SIR, I understand that a Dr Wheat formerly of New Haven now a resident of Philadelphia has or is about to take out a Patent on Rubber Plates for dentical purposes. I think he is associated with a Mr. Herrien (the Jerman that I have spoken of) as he left here some months ago. I think it is well to look into this matter, as I have it correct. I see by an advertisement in a Boston paper that Palmer & Hall 158 Wash. st. offer the Gutta Percha Compound like Slatons for $25,00 per lb. why can we not do the business at once by making up 40 or 50 lbs & sell it at a low price, I have had several orders for it, one man wanted 10 lbs.

How is the Heater? have you got it tight so that it wont leak.

Yours Truly

F. A. BEVIN
pr J. L. BEVIN

421 *Complainants' Exhibit* 35.

NEW HAVEN *Apr* 24, 1856.

DR CUMMINGS

DEAR SIR It has been sometime since I have heard from you, and I am anxious to know if you contemplate doing anything with the Vulcanized Rubber for teeth. Mr H. Goodyear says way were to write him and let him know what you would do, and he is disapointed in not hearing from you before this. I wish you decide soon as there are other parties ready to take hold of it if you do not.

Truly yours

F. A. BEVIN
pr J. L. BEVIN

Complainants' Exhibit 36.

25 TREMONT STREET *June* 19 1856

MR BEVIN

DEAR SIR I was quite surprised the other day to receive thro Mr. Hurd of Medway a bill against me—I had supposed it all settled as we went along—It makes it hard for me as I have had to pay all the cash both for myself yourself & Cooke & have not recd one dollar in return except for those boxes of Filling material—neather have I been able to obtain a a patent which has also involved me in considerable expese—also a boiler has been made hear at a corst of about $40 which perhaps you would like—Mr Cooke says by going to New York that the "thing" can be sold for a good deal of money. What think you of it?

Yours truly &c

JOHN A. CUMMINGS.

422 *Complainants' Exhibit* 37.

NEW HAVEN, *Oct* 24, '66.

DR CUMMINGS

DEAR SIR It has been some time since I heard from you. And as Mr. Goodyear is a about to have the Rubber buisness Started in Boston for Dental purposes, I thort I would write you on the subject, and you could see what had been don. I have put in a heater for Dr. Putnam, New York, and one hear for Dr Mallett, and they are now going a head all are pleased with the work. the work can be put in cheap or dear as the case may be. the Dr just put in a full sett Blocks at $120.—that will pay. It takes with the first class as they are so easy to wear. If you wish to do anything in the business pleas in forme us at an early date.

Yours Respectfully

F. A. BEVIN

Complainants' Exhibit 38.

Statement of stock sold by Dr. Cummings to Josiah Bacon, Boston.

1864				
Octo 20	6	shares	D. V. Co	Stock.
1865				
June 5	2	Do	Do	Do.
	8	Shares.		

In answer to statements called for by int. 44.

It is impossible for me to give simply from recollection, which is the only means I have at my command, just what sales of stock were made by Dr. Cummings at my suggestion, and what without it.

Dr. C. has, to the best of my knowledge, sold 739 shares stock, & in addition to the lot 500 shares testified to as transferred W'm A.
423 Bevin esq. in liquidation of a contract made with F. A. Bevin, deceased, & which is one of the exhibits in this case.

JOSIAH BACON.

Deposition of Clement A. Walker.

Int. 1. State your name, age, residence, and profession.

Ans. My name is Clement A. Walker; age 45 years; residence, Lunatic Hospital, South Boston, of which I am superintendent and resident physician.

Int. 2. Have you, and if so for how many years, made disorders of the mind your special object of study and practice?

Ans. I have for fourteen years.

Int. 3. Are you acquainted with Dr. John A. Cummings, of Boston; and if yea, how long have you known him, and how intimately?

Ans. I have had a pretty thorough acquaintance with Dr. Cummings for twelve years. During the first part of that period I was in the habit of meeting him almost weekly, sometimes oftener than that.

Int. 4. When did you last see and converse with Dr. Cummings?

Ans. This morning.

Int. 5. When last before that?

Ans. I am unable to say. For the last six months I have not seen him frequently—only occasionally, in the street, for a few moments only.

Int. 6. At whose request, and for what purpose, did you have your interview with Dr. Cummings this morning?

Ans. At the request of Dr. David Thayer; for the purpose of determining Dr. Cummings' mental condition.

Int. 7. State, if you please, what you observed in such conversation indicating his mental condition.

Ans. I found the doctor laboring under marked inability to re-
424 collect—to recall events with which he had been familiar and the names of persons with whom he had been very intimate.

Int. 8. How did you find him as to recollection of particulars from time to time of the same conversation in which you were engaged; how did he retain the thread of it?

Ans. My answer to that is contained in my answer to the other questions. I turned the conversation on Rainsford Island, having been down there yesterday, and he having been formerly, for a number of years, one of the inspectors of the island. Generally his recollection was fair in regard to the island and general matters there, but quite defective in relation to details; as, for instance, in reply to my inquiry who were his associate inspectors, he answered quite readily, Capt. Goodwin, then hesitated, stammered, and after a considerable time, and with evident effort, he spoke Gen. Sutton's name, with whom he was very intimate indeed. In the midst of the conversation he would turn it upon other matters, so much so that, if I hadn't known him pretty well, I should have believed that the subject was an unpleasant one.

Int. 9. From your conversation this morning with Dr. Cummings, what is your opinion as to his capacity to give reliable answers to interrogatories and cross-interrogatories in regard to dates and events of from five to ten years past?

(Objected to.)

Ans. As I saw him to-day, he cannot be depended upon.

Int. 10. Suppose the case of a method of operation in dental work practiced by Dr. Cummings, or under his direction in numerous instances, ten years ago, and the subject of much thought and conversation by him from that time down, do you think the doctor capable of having given, two months ago, a correct description of such operation, allowing him abundant time for reflection?

(Objected to.)

Ans. I should have difficulty in answering that question in regard to Dr. Cummings, personally, for the reason that, during the six months past, I have seen so little of him. I can answer it, however, generally as pertaining to parties diseased as I find him to be. Parties so
425 diseased often have the power, under circumstances as supposed, to make correct and reliable statements, when, under the agitation of a cross-examination, they would be wholly unable to command their recollection.

Cross-examination:

Cross-int 1. How long have you known Dr. Cummings to be of unsound mind or memory?

Ans. I have observed it in him, in a greater or less degree, for four years.

Cross-int. 2. When you so observed it, in your opinion, was the doctor drunk or sick; and if sick, what was the matter?

Ans. He was not drunk; I regarded him as sick, as I suppose you use the term sick, exhibiting symptoms of mental imbecility or dementia.

Cross-int. 3. Are you a stockholder in the Dental Vulcanite Company?

Ans. I am not; I never heard of it until this morning.

Cross-int. 4. Was Dr. Cummings, this morning, when you saw him, suffering from bodily or physical illness?

Ans. He was.

Direct resumed:

Int. 11. Does the bodily or physical illness under which you found the doctor suffering this morning, account, in your judgment, for the mental phenomena which he exhibited?

Ans. It does not.

CLEMENT A. WALKER.

Deposition of David Thayer.

Int. 1. State your name, age, residence, and profession.

Ans. David Thayer; age, 52 years; residence, Boston; profession, physician.

426 Int. 2. Are you the attending physician of Dr. John A. Cummings, and how long have you been accustomed to attend him and his family?

Ans. I have been his attending physician; I was called the day before yesterday to see him, by his wife. I have attended him and his family more or less for eight years. May have attended him longer than that, occasionally.

Int. 3. In the course of such professional attendance upon Dr. Cummings have you become acquainted with the peculiarities, if any, of his mental condition, and observed the progress of any mental disorder in his case?

Ans. I reply that I have.

Int. 4. State, if you please, what you have so observed.

Ans. Loss of memory, inability to reason correctly, forgetfulness of dates of events having transpired long since.

Int. 5. From your observations of this nature, what is your opinion as to his capacity to give reliable answers to interrogatories and cross-interrogatories in regard to dates and events of from five to ten years past?

(Objected to.)

Ans. My opinion is that his ability to give correct information is very imperfect.

Int. 6. Suppose the case of a method of operation in dental work practised by Dr. Cummings, or under his direction, in numerous instances, several years ago, and the subject of much thought and conversation by him from that time down, do you think the doctor capable of having given, two months ago, a correct description of such operation, allowing him abundant time for reflection?

(Objected to.)

Ans. Well, I think he would—he might; I think he would. I think I see a reason why.

Int. 7. State, if you please, the reason why you think he would give a correct description of such operation, under the circumstances as supposed, and yet be of infirm ability to give reliable answers to interrogatories and cross-interrogatories as to dates and events of from five to ten years past?

Ans. For the reason that it has been the subject of his thought and reflection for so long a time that he could scarcely be supposed to make an error. Having told the same thing so many times to many different persons, and having defined the process so many times, a mistake would not be very likely to be made.

427 Int. 8. How does Dr. Cummings' condition of mind in the respects inquired of, compare with what it was a month or two months ago? Is he improved, or stationary, or declining?

Ans. I am sorry to say that he is declining, in my opinion, and has been for a long time.

Int. 9. To what, if any bodily disease, in the case of Dr. Cummings, do you attribute the mental condition to which you have referred?

Ans. In the first place, hereditary scrofulous constitution; also a strong tendency to pulmonary consumption; also his irregular or intemperate habits, and which, in my opinion, have prolonged his life, yet impaired his mind.

Int. 10. Have you seen or been informed of the testimony given today by Dr. Walker?

Ans. No.

Cross-examination:

Cross-int. 1. How long have you known Dr. Cummings to be of unsound mind or memory?

Ans. Well, sir, a year or two; I would say a year with confidence.

Cross-int. 2. What proportion of the time, as far as your observation extends, during the past year, has Dr. Cummings' mind been affected?

Ans. It's impossible for me to say what proportion of the time, because I have not been with him every day.

Cross-int. 3. When you was with him did you generally notice anything wrong in the condition of his mind?

Ans. Yes; generally when the stomach was not in a healthy condition.

Cross-int 4. Was his stomach generally in an unhealthy condition?

Ans. No. By "generally" I understood you to mean more than half the time.

Cross-int. 5. In your opinion, has Dr. Cummings been competent to transact business during the past year for most of the time?

Ans. Yes; some business.

Cross-int. 6. Was he liable, at any time, to be incompetent, and have you actually seen him, when incompetent, during the past year; and if so, how often?

Ans. Yes, to both inquiries; frequently, especially in the evening—at night.

428 Direct resumed:

Int. 11. Do you mean to be understood that the condition of mental infirmity in which Dr. Cummings now is depends upon whether his stomach happens to b' in a healthy or unhealthy condition?

Ans. I do, very much.

DAVID THAYER.

Deposition of George H. P. Flagg.

Int. What is your name, and have you before testified in this case?

Ans. George H. P. Flagg; I have.

Int. 2. State, if you know, what examination, if any, Dr. Cummings gave to the description in his reissue patent of his original method of

preparing hard-rubber plates and mounting artificial teeth therein, before such description was signed by him, and what means you have of knowing (if the fact be so) that Dr. Cummings had in mind, before seeing this description, the said original method there specified.

(Objected to.)

Ans. It was some time before he ever saw that reissue, or whatever you call it, that he explained to me the whole process such as described in the reissue. I never saw him read that description or specification, and don't know that he ever signed it. The time I allude to in the first part of my answer is some two months before the reissue application was sent off.

Cross-examination:

Cross-int. 1. Did you assist Mr. Gavett, who has been examined in this cause, in preparing the amended specification for the reissue patent; if yea, in what way and to what extent?

Ans. I did not.

Cross-int. 2. Did you render any assistance to any person about the reissue? If yea, what, and to whom?

429 Ans. I can't say as I did. Questions have been asked me by Mr. Browne and Mr. Gavett. Various questions relating to various things. Everything pertaining to this case.

Cross-int. 3. Can you state positively that the amended specification of the reissue patent was not made by Mr. Gavett substantially according to information furnished by you?

Ans. It was not.

Cross-int. 4. Have you ever read the amended specification of the reissue patent? If yea, is it a true description of the art of making hard-rubber plates for the insertion of artificial teeth as now practised in your profession of dentistry?

Ans. I have read it. The principle is the same, or very nearly the same, with the exception of a number of improvements.

Cross-int. 5. What do you mean by the principle, and what are the excepted improvements referred to in your last answer?

Ans. I mean by the principle, that a set of teeth could be manufactured in the way Dr. Cummings described to me, early in 1855, and made practical. One of the excepted improvements is that we have a metallic flask for the purpose of holding the plaster more firmly round the teeth and plate. Another is in the packing; by placing a large amount of rubber in the packer, and it is carried into this flask by means of a screw, this flask and packer being inserted in boiling water. There are other improvements, which follow in the way of finishing up, and those things—such as felt and cotton wheels—the color of the rubber. There is a great improvement in the teeth. And as for myself, I have so arranged the rubber, that I can pack it in about one-eighth of the time. I don't thing of anything else.

Cross-int. 6. Were you consulted or informed about the transfer of stock in the Dental Vulcanite Company by Dr. Cummings to W. A. Bevin, or the heirs of F. A. Bevin, previously to or about the time of its transfer.

Ans. I was not consulted. But I knew, at or about the time, that Dr. Cummings was arranging matters with him. I had nothing to do with the matter.

G. H. P. FLAGG.

430 *Deposition of Joseph Gavett.*

Int. 1. Who prepared and prosecuted the application before the Patent Office for the second reissue—that upon which this suit is founded—of the Cummings patent?

Ans. I did.

Int. 2. What patent was in fact surrendered by you to be cancelled and reissued by said second reissue?

(Objected to.)

Ans. The first reissued patent, only.

Int. 3. From whose custody did you receive that first reissue for the purpose of such surrender?

Ans. From the Dental Vulcanite Company, through Mr. Bacon, its treasurer.

Int. 4. Who directed you to make such surrender?

(Objected to.)

Ans. Mr. Bacon.

Int. 5. For whom or as whose agent did you act in making such surrender and obtaining such second reissue?

(Objected to.)

Ans. For the Dental Vulcanite Company.

Int. 6. From whose custody did you receive the original patent of Cummings to be surrendered for the first reissue?

Ans. From the Dental Vulcanite Company?

Int. 7. For whom or as whose agent did you act in surrendering that original patent for that purpose, and who directed that surrender?

(Objected to.)

Ans. The Dental Vulcanite Company.

Cross-examination:

Cross int. 1. Had you any written power of attorney from said company for the first or second surrender of said patent?

Ans. I think not.

Cross-int. 2. Did you act under a written power of attorney from Cummings in both of said surrenders; and if yea, was not said power recorded in the Patent Office?

431 Ans. I had the usual power of attorney, which I generally send with any application either for a patent or a reissue, as I generally prefer to have it from the inventor himself. It was sent with the specification in these cases.

JOSEPH GAVETT.

Deposition of Josiah Bacon.

Int. 1. Mr. Flagg, witness for the complainants, in his answers to the thirty-fifth and thirty-sixth cross-interrogatories, states that when the Dental Vulcanite Company first started, $12,600 of its stock was sold at par for cash, and deposited in the treasurer's hands, and that there was also a personal guaranty by some of the large and wealthy stockholders, to the treasurer, that he might have as much more as he wanted. State, if you know, all the particulars of these transactions; who bought the $12,600 stock; and what security, if any, was given to, or what arrangement, if any, made with the persons purchasing the same.

Ans. At the formation of the company, 125 shares of stock was put into my hands by the original owners of the patent; the stock having been divided among them, proportionately to their ownership in the

patent. That 125 shares was issued by me to the following parties. Henry Souther, 50; David Thayer, 40; B.S. Codman, 5; P. Kennison, 20; G. W. Simonds, 5; and J. D Martin, 5. These gentlemen all paid me cash for the same, at par, $100 per share, save B. S. Codman, who gave me his note for $500, he being momentarily short, and Dr. Thayer gave me his note for a portion of the amount, secured by collateral deposit of U. States 5-20 bonds, telling me I could call upon him for the money whenever I wished it; and his note drawing interest until paid, which interest he has paid regularly. There was no
432 security or obligation of any kind, sort, name, or nature, to refund them the money, in case of the ill success of the company. It was a bona fide sale of the stock for the money named. If the company is not successful, those gentlemen are out just so many dollars. I was also assured by the large stockholders—the original ones I mean—Flagg and Osgood, Cummings and Gavett, that if more money was needed, they would place in my hands whatever stock should be wanted to sell for additional working capital. This was a verbal, not a written, assurance.

Counsel for respondent, declines to cross-examine.

JOSIAH BACON.

EXHIBIT V, W. W., JR.

UNITED STATES PATENT OFFICE,
Aug. 5th, 1865.

SIR: Yours of 27th ult. has come to hand. Upon examination, there appears to have been informality in the reissue of patents numbered 1848 and 1904. An assignment from John A. Cummings to the Dental Vulcanite Company of the invention, was received and placed on record some time prior to the application for reissue. The application came forward, and, when patented, was sent to the inventor, he having surrendered the original patent without calling attention to the assignment on record. The next day you were furnished a certified copy of the reissued patent. A few days thereafter, the patent was returned,
433 that it might be altered to show the title in the Dental Vulcanite Company. Being simply a clerical error, it was so altered. The fact of your having been furnished a copy was overlooked, or you would have been asked to return the same for correction. Will you please return it now?

In reference to the second reissue of March 21, 1865, the petition is found to only recite the original patent of June 7, 1864; but the reissued patent of January 10, 1865, was the patent actually surrendered, and the only patent in existence to be surrendered.

The application, according to the usual custom, should have been made by the owners. In this case it appears to have been made with their concurrence by the inventor.

A copy of the letter of January 23d, 1865, is herewith forwarded, the cost being 30 cents.

Respectfully, &c.,

D. P. HOLLOWAY, *Com.*

Hon. GEO. S. BOUTWELL,
Boston, Mass.

It is agreed that the subjoined letter of Tho's W. Evans contains what he would testify to if produced and examined as a witness for defendant,

and that it may be taken, to all intents and purposes, as the deposition of said Evans in this case.

CAUSTEN BROWNE,
Solicitor for Complainants.

15 RUE DE LA PAIX,
Paris, Nov. 28, 1864.

To the members of the Massachusetts Dental Association.

GENTLEMEN: During my recent brief visit to the United States, Prof. J. D. White, of Philadelphia, put me in possession of a copy of the letter addressed by you to the Pennsylvania Association of Dental Sur-
434 geons, in regard to certain letters-patent of Mr. John A. Cummings, of Boston, claiming the exclusive right to use India-rubber for artificial palates, and for plates to serve as a base for artificial teeth. The little time I had at my command in America, did not permit me then to give that attention to your communication which its importance demanded. As a member of the Pennsylvania Association, I have felt imperatively called upon by your letter to communicate the knowledge of certain facts of which I am personally cognizant, and which, I trust, will throw a clearer light upon the real worth of the claims now put forward. Sincerely desirous of seeing simple justice done to all parties, and of co-operating in the worthy object you have in view, I trust you will excuse my speaking, on the present occasion, of matters somewhat personal to myself, and which, under other circumstances, I should have hesitated to mention.

It was in the autumn of the year 1847 that I first quitted the United States, and established myself in the practice of the dental profession in Paris. In America, where I had first studied my profession, I had been educated to the belief, then universally accepted by the dentists of the United States, that the best and most practical artificial pieces were those made with metallic plates and mineral teeth. I was struck, however, on my arrival in Europe, with observing, both in England and on the continent, the very general use in mechanical dentistry of pieces made of "bone," (either of ivory or of tooth of hippopotamus.) From a knowledge of the long experience and eminent reputation of the leading European dentists who adopted this practice, I could not but believe that this system must possess certain decided and important advantages to recommend it to such general favor. From personal observation I was myself soon convinced that among the advantages of "bone" were, particularly, an elasticity of fibre closely analogous to that of the human bone tissue, and a light specific gravity which rendered it less liable to hurt the gums than the combination of metal and porcelain. Whilst these facts in its favor were placed beyond question, there were,
435 at the same time, certain grave disadvantages no less observable, which seemed, in my judgment, to more than counterbalance the apparent advantages. The bone artificial work, through the action of the secretions of the mouth, changed color readily, soon decomposed, and became very offensive in the mouth, thus necessitating frequent renewal. From a careful study of the relative merits and demerits of the two systems, I was led to make a series of experiments, with a view to discover some material which, combining the advantages of both, should offer a permanent resistance to the action of the fluids of the mouth, and at the same time possess the elasticjty and lightness of the natural bone. One of the first substances upon which I experimented was caoutchouc. My efforts were particularly directed how to modify

its elasticity, and how to change its color. In the early part of the year 1848 I devoted the leisure which the derangement of the French revolution afforded, to working out these problems, being then, and even now, still unaware whether any efforts were being made at the time by other parties towards their solution. I had already, previously, proof that sulphur was a substance very little liable to change or decompose in the mouth. The knowledge of this fact led me, by natural induction, to think of combining it with caoutchouc. After trying many plans to work together the two substances, I hit upon the application of dry heat, and I succeeded in producing a material hard, black, and possessing the elastic properties of horn. In fact, one of the earlier original pieces of the substance thus discovered, I put away in a drawer of my cabinet, and upon the paper enveloping it I wrote the following words: "Tried to find ivory—succeeded in making ebony." Subsequently, by employing successively moist heat and then steam, I obtained still more satisfactory results. The specimens of the substance finally produced were in every respect identical with the vulcanized India-rubber now in use, with the exception of color, and this I sought to modify by employing various coloring materials in composition. The colors which I thus obtained did not satisfy me altogether.

436 From the year 1848 forward, I continued from time to time to make new experiments upon caoutchouc. From a previous experience, however, with another preparation which had at first promised most excellent results, which the lapse of time did not confirm, I used the utmost caution in adopting the hardened caoutchouc into my practice, as I wished to first assure myself more positively of its durability and practical value. I have always felt that great discrimination was requisite to decide the particular cases in which it could be beneficially employed. The cases in which I have found it particularly applicable have been the following: Where, in either jaw, the molar teeth require to be very high; especially in the lower jaw, where there has been much absorption; or where, from the great absorption of the alveolar processes, it has been necessary to bring out and restore the true conformation of the mouth. I have found it specially valuable in cases, also, where, through wounds or surgical operations, a portion of the bone has been carried away or removed, and it has been necessary to supplement the defect by the use of artificial means.

In 1851, my attention was drawn to the fact that Mr. Charles Goodyear, sen'r, had taken out patents in the United States for the discovery of a new substance which, from the description given, seemed to resemble what I had myself independently discovered. Towards the close of the same year, or early in 1852, a Mr. Charles Morey applied for letters-patent in France for hard India-rubber; and, as Mr. Goodyear had not taken the precaution to secure his own patents in France, the application of Mr. Morey was favorably entertained, and a patent was awarded him by the French government. I had previously fully acquainted Mr. Morey with what I had myself succeeded in doing, and he was candid enough, then, to admit that, so far as he was able to know, my experiments had been made in advance of the date of Mr. Goodyear's patent in the United States. Mr. Goodyear, sen'r, on coming to Paris, made an arrangement, I believe, with Mr. Morey, by which the latter transferred his

437 own patent and received a certain interest in those of Mr. Goodyear's.

After the close of the great London exhibition of 1851, Mr. Goodyear arrived at the "Hotel de Douvres," in the Rue de la Paix, Paris. The next morning after his arrival, I called upon him and had a full and free

conversation with him on the subject of caoutchouc, on which occasion I mentioned in detail my previous experiments, and my hopes from the use of caoutchouc for dental purposes. I have a most distinct and vivid remembrance of one remark in particular which he made in reply: "Here, again, is a new application which I never thought of!" He urged me to make him a set of teeth with caoutchouc as the base, and I did make him not only one but severel pieces for his mouth, one of which I still retain in my possession, and which I think is quite as good, as regards the material, as any I have since seen. After hearing the account of my own experiments, he expressed the wish that I would take no steps to contest his patents for hard India-rubber; and, by way of consideration for my making no opposition to his claims, he proposed of his own free will to give me the exclusive right to his patents for the entire continent of Europe, he to retain for himself all of the United States and England. To this proposal I made an instant and decided refusal, basing my refusal on the ground that I was opposed upon principle to any patents within the domain of professional science. I also took occasion to state to him that I should unhesitatingly claim at all times what I felt to be my right, and that I should continue to use, and should urge others to use caoutchouc as a base for artificial teeth, without paying any regard to any patents. And this course I have undeviatingly pursued to the present time.

Subsequently to the first visit of Mr. Charles Goodyear, sen'r, his son, Mr. Charles Goodyear, jun'r, came to Paris. He called upon me several times, and I spent a good deal of time in freely acquainting him with the various processes I employed in making my moulds, in manipulating and moulding the substance, in adjusting the teeth,
438 &c. In May, 1855, he took out a patent for the application of caoutchouc as a base for artificial teeth. I learned this fact with surprise, as I had strongly expressed to him my desire that this application of caoutchouc should never be patented. My opinion was clear then, and still remains unchanged, that this patent, not being for an original invention, was certainly not entitled to stand good, and that the members of the dental profession had, therefore, an indisputable right to the unrestricted use of hard caoutchouc in operations of mechanical dentistry.

In 1858, Mr Putnam, of New York, called upon me and informed me that he had brought out with him specimens of an improvement in ca'utchouc, for the secret of which he asked a consideration. He exhibited several pieces of artificial work in caou'chouc, which I noticed had stamped upon them the words "Goodyear's patent." He was under the impression that he was showing something entirely new in Europe. To undeceive him, I produced, to his astonishment, some pieces of my own, which had been made several years before, and which bore a close and striking resemblance to those he had shown me. I stated to him frankly that I had found that in manipulating the hardened caoutchouc, there was an uncertainty of result, as its consistency could not always be depended upon, the substance being sometimes more porous, at other times more brittle. He gave me assurances that he could give me certain information as to the mode of baking and of manipulating the material which would obviate the recurrence of these difficulties, and which would guarantee a uniform definiteness of result. He spent several days in making experiments. But he failed to obtain anything better, or any greater degree of uniformity than I had myself. The year following he came abroad again, with a new machine for vulcanizing, which appeared to possess advantages over that which I then

had in use. I therefore, purchased one of the machines from him, as my wish was to obtain every improvement that appeared to offer any advantages.

Within a few years past, as is well known, many improvements
439 have been made in vulcanizing machines and in the use of vulcanite. But the members of the dental profession have been uniformly desirous to have the liberty to use these improvements thrown open to all. Quite recently a number of the leading dentists both in England and France have concurred in a declaration to the effect that the introduction of vulcanite into mechanical dentistry has been of great advantage to the profession and of immense benefit to humanity, and that, therefore, its use should be left untrammeled by any patent rights whatsoever. In conclusion, gentlemen, I need scarcely add that I cordially wish success to the efforts put forth by your association, and in which I doubt not the entire dental profession of America will heartily concur.

I have the honor to be, gentlemen, with high regard,

Yo. mo. ob. serv't,

THO'S W. EVANS, M. D.

440 TESTIMONY IN REBUTTAL FOR COMPLAINANT.

Deposition of G. H. P. Flagg, taken in Boston, August 18th, 1869.

GEORGE H. P. FLAGG, being duly sworn, doth depose and say, in answer to interrogatories propounded to him by Caustin Browne, esq., of counsel for complainants, as follows, viz:

Q. 1. State your name, age, residence, and occupation.

A. George H. P. Flagg; age, 39 years; residence, Boston, Mass.; occupation, dentist.

Q. 2. Do you know Robert Haering, of New York City? and if yea, how long have you known him, when did you know him, and what was the nature of your connection with him?

A. I do know him. I first knew him in 1864. I havn't seen him for some years. I knew him one full year. My first connection with him was in the fall of '64, when I went on to New York and hired him for one year to perfect the color of hard rubber, having understood that he had experience in the compounding of rubber. I went to see him about once in three weeks, and we were writing backwards and forwards during those times, and he was sending a sample of rubber for me to vulcanize. We improved the color very much, but never got it to the state we wanted it.

Q. 3. Did you ever have any conversation with him in regard to the invention of hard-rubber dental plates? and if yea, state, to the best of your recollection, what he said.

441 A. I have. He told me he had made plates for Mr. Bevins, supposing all the time they were for him, but afterwards found out from Bevins that they were for Dr. Cummings, of Boston. He said he found out that Dr. Cummings was making application for a patent, and never said anything but what he (Cummings) was the inventor.

Q. 4. Did Haering at any time intimate to you or claim that he was the original and first inventor of the hard-rubber dental plates?

(Objected to as irrelevant.)

A. No, sir.

Q. 5. Did you ask him to make an affidavit, of which this is a copy?

(Witness is shown a press copy of an affidavit admitted by defend-

ant's counsel to be a true copy of the affidavit shown Robert Haering upon his cross-examination in New York.)

A. I did.

Q. 6. Did you send it to him?

A. I did.

Q. 7. How?

A. I don't know how; but he retnrned it to me enclosed with a letter, which I produce, marked "Exhibit Flagg" by the examiner.

And in answer to cross-interrogatories propounded by John A. Foster, esq., deponent saith as follows, viz:

Q. 8. Were you ever in partnership with John A. Cummings, the patentee herein?

(Objected to.)

A. Yes, sir.

Q. 9. About when?

(Objected to.)

A. In November, 1855.

Q. 10. Dissolved before he obtained his patent?

(Objected to.)

442 A. Yes, sir.

Q. 11. After Dr. Cummings obtained the patent, was a company organized to whom the patent was assigned, and to whom a reissue of the same was granted?

(Objected to as irrelevant, and not called for by the examination-in-chief.)

A. There was.

Q. 12. Were you a stockholder in the company?

(Objected to as immaterial.)

A. Yes, sir.

Q. 13. Were you a stockholder in the company at the time you held these alleged conversations with Robert Haering?

A. I was.

Q. 14. How many shares of stock did you hold at that time?

(Objected to as irrelevant.)

A. My partner, Dr. Osgood, and I held about one-quarter.

Q. 15. That is 1,250 shares?

(Objected to as before.)

A. Yes—less what was put in as working capital.

Q. 16. At that time you had the conversation with Haering, you owned about 600 shares, did you not?

(Objected to.)

A. I did.

Q. 17. Where or from whom did you first hear of Mr. Robert Haering?

A. I can't seem to call it to mind now.

Q. 18. Why did you suppose he would be a proper party to experiment in colors for hard rubber for dental uses?

A. I got the idea somewhere that he understood the working of rubber better than most any one else that I could get hold of.

Q. 19. At that time where did you live and where did Haering live?

443 A. I lived in Boston and he in New York.

Q. 20. Where did you first meet him?

A. In New York, at a small hotel in a street running parallel to Broadway, in the upper part of the city. I can't tell the name of the street. He boarded there at the time.

Q. 21. How did you ascertain where he resided?

A. I can't seem to remember.

Q. 22. Before going to New York to find Haering, did you have any conversation with any one in Boston in reference to employing him?

A. My impression is that I did not, from the very fact that I did not know where to find him, or how to find him, or whether he could do anything for me?

Q. 23. Then, when you went to New York, you didn't know where he lived, nor what he could do for you, nor whether you could employ him? Is that so?

A. I suppose I had some sort of starting point, but I can't remember more definitely than I have stated.

Q. 24. At this time was Mr. Josiah Bacon an officer in your company? (Objected to as irrelevant.)

A. He was.

Q. 25. Did you not have consultations with him in reference to your employment of Haering before you went to New York to find him?

A. I did not. I hired Mr. Haering on my own sole account, and no one knew it in Boston until I came back.

Q. 26. Was Bacon in New York when you hired Haering?

A. Not to my knowledge.

Q. 27. You paid him a thousand dollars per year, did you not?

A. Yes, sir.

Q. 28. Did you receive any portion of this from the company?

A. I did.

Q. 29 How much?

444 A. The full amount. As I have said before, I went on to New York on my own responsibility; found Mr. Haering, and hired him for one year at a rate of $1,000 per year, payable monthly in advance. I had a lawyer in New York make out papers to that effect. I paid him the first monthly instalment out of *of* my own pocket; came home, and told the directors what I had done. They said we will pay this and assume it, and the improvements he may make shall go to the company, and I assented to this. They paid me back what I had already paid, and continued to pay while the contract lasted.

Q. 30. Was the agreement that he was to experiment for you in perfecting the color of dental rubber for one year, and for which he was to receive $1,000, as above?

A. Yes, sir.

Q. 31. Did you not request him to go to your lawyer to have a contract drawn expressing such agreement?

A. Yes.

Q. 32. If this was your agreement, why did the contract express in its terms that Haering was to assign the inventions that he had made in the use of hard rubber for dental purposes?

(Objected to as assuming facts not proven.)

A. I forget that anything of the kind was expressed in it, and if it is there I don't know why the lawyer put it in.

Q. 33. Did Haering at that time state to you anything in regard to his having made an invention or discovery in relation to hard rubber for dental purposes?

A. Nothing; only that he had a better color than any that was made.

Q. 34. Did he not state to you that he had applied for a patent for making hard-rubber dental plates, and that the same had been rejected?

A. He did not.

Q. 35. Did he not state that such application was made for him in his behalf by Dr. Wheat?

A. He did not.

445 Q. 36. Did he say anything in relation to a Dr. Wheat?

A. Nothing that I can recollect, only that Dr. Wheat used his rubber or that which he prepared.

Q. 37. By whom were the monthly payments to Haering made while he was in your employment under this agreement?

A. Mostly myself.

Q. 38. Were they ever made by Josiah Bacon?

A. Yes, sir.

Q. 39. On what occasion was it that he made the statements you have testified to in your direct examination, in answer to the third interrogatory?

A. It was several different times.

Q. 40. When was the first occasion that he mentioned it?

A. I couldn't say.

Q. 41. About what month did you enter into this arrangement or agreement with him?

A. I don't recollect without referring to the contract.

Q. 42. How long after the first time that you met him was it?

A. I made the contract the first time that I ever saw him.

Q. 43. Was it on this occasion that he made the statements you have given in your 3d answer?

A. I have no recollection of any conversation with him concerning Bevins at our first meeting. My business was solely to employ him to perfect the color.

Q. 44. Can you state whether or not it was within three months of the date of the contract that you had this conversation?

A. I cannot; but should think it was.

Q. 45. Did he ever have any conversation with you in relation to Dr. Wheat's having applied for a patent for him?

A. I have no recollection of such.

Q. 46. To whom did you state the conversation you had with Mr. Haering, after your return to Boston?

A. To the company.

446 Q. 46. Did you see the affidavit before it was sent to Haering in New York?

A. I am quite positive that I did.

Q. 48. You don't know how it was sent to New York, do you?

A. I don't recollect.

Q. 49. Do you know how it was received from New York?

A. I am not certain.

Q. 50. Please state whether Haering said anything to you in relation to Bevins being the inventor, before the affidavit was made?

A. No more than that he supposed he was first, but afterwards found that he was not. I am almost certain that he told me this before the affidavit was made.

Q. 51. Please state in detail what Mr. Haering said on this occasion in relation to Bevins being the inventor.

A. There was but very little ever said between us about Bevins. My business with Haering was color.

Q. 52. State that little that was said.

A. He said he supposed at first that Bevins was the inventor, and afterwards found that it belonged to Dr. Cummings. In fact I never heard him say but very few words about Bevins or Cummings.

Q. 53. Did he not say that he thought that he was making teeth for Bevins, when, in point of fact, it turned out that he was making them for Cummings? Was not that the conversation?

A. Yes. That's what I have said, that he supposed he was making plates for Bevins, and, come to find out, it was for Cummings.

Q. 54. Did he use the word "invention" in connection with either Cummings or Bevins?

A. No more then, when he spoke of Cummings applying for a patent.

And, in answer to direct interrogatories resumed, deponent saith:

447 Q. 55. Have you any interest, present or prospective, or of any nature whatever, in the patent of Cummings, herein referred to, or in the company who now owns the patent?

A. I have not.

G. H. P. FLAGG.

Exhibit Flagg—N. A. Parks, Examiner.

NEW YORK *March 19h* 1856

DR. FLAGG

DIER SIR Inclosed I send you the Avedavet what ever I cane do in this matter I will assist you whit pleasure. The experement whit the Gum Colour going on vere slow but et have to come et must been a colour to protuce et I, hope to see you son in New York, please let me know before you kom.

Yours respectfully

ROBERT HAERING.

G. H. P. FLAGG.

I, N. Austin Parks, notary public duly authorized, admitted, and sworn, within and for the county of Suffolk, in the Commonwealth of Massachusetts, in the United States of America, residing and practising in Boston, in said county, do certify that, on the eighteenth day of August, A. D. 1869, I caused to appear before me George H. P. Flagg, a witness on behalf of the complainants in the above-entitled case; and, that he having been duly sworn to testify the whole truth and nothing but the truth, relating to the matters at issue in the same, his several answers to the interrogatories propounded to him, were by me reduced to writing in his presence, and by him subscribed in my presence,

448 and are hereto annexed; and that both parties were present by their respective counsel.

In testimony whereof I, the said notary, have hereunto subscribed my name and affixed my notarial seal of office, this eighteenth day of August, annoque Domini 1869.

Quod attestor:

[L. S.]

N. AUSTIN PARKS,
Examiner and Notary Public, County of Suffolk.

449 *Deposition of Mrs. Frances M. Cummings, taken in Boston, August 18th, 1869.*

FRANCES M. CUMMINGS, produced by complainant, being duly sworn, doth depose and say, in answer to interrogatories propounded to her by Caustin Browne, esq., of counsel for complainants, as follows, viz:

Q. 1. State your name and residence.

A. Frances M. Cummings; I reside in Boston, but am now at the farm of my husband, at Dunstable, Massachusetts.

Q. 2. Are you the wife of Dr. John A. Cummings, to whom, or to whose assignees, the reissue patent was granted, upon which this suit is based?

A. I am.

Q. 3. Is he now at Dunstable?

A. He is.

Q. 4. Will you state where your husband has been during the last three or four years?

A. We were in Dunstable two years, and five years ago last April we took a house in Boston; meantime my husband's health was so poor that we were obliged to go abroad, by the advice of his physicians. We went to Europe in October, 1866, and returned the following August. He returned comparatively restored, and in September was taken
450 sick and has been sick ever since. Last winter he never left the house from November till the last of March. Last fall we were going to Cuba, but he was so very sick he could not go. He is now waiting to get a little more comfortable, that he may go to some springs; but I fear he will be never be able to do so. He can't ride; he doesn't rise until about one o'clock in the afternoon, and can eat very little, living almost entirely on fruit. For the last four years he has been a great invalid, and unable to attend to any kind of business.

Q. 5. Do you remember the circumstance of Dr. Cummings applying for a patent for this invention in 1855?

A. I do.

Q. 6. And it was rejected by the Patent Office?

A. Yes, sir.

Q. 7. Between the time that it was so rejected and the time when it was finally taken up again and granted, what was Dr. Cummings' disposition or intention as to giving up his claim to a patent for the invention, or persisting in such claim?

A. He never intended to give it up, and had he had means he wouldn't have let it lay so long as he did. He hadn't the means to go along. The subject was scarcely out of his thoughts and was almost a constant topic with him; so much so that it became very disagreeable to me. I believe, in his heart, he always felt sure that he should get it.

And in answer to cross-interrogatories propounded to her by J. A. Foster, esq., of counsel for respondent, deponent saith as follow, viz:

Q. 8. At the time your husband first applied for a patent, what was the state of his health?

A. Well, he was so that he attended to his business, but I don't think he did any dentistry for years before. He was not sick enough to stay at home and went out, but I always thought he had the seeds of
451 consumption. It was about eighteen years ago that this scrofulous humor began to show itself.

Q. 9. At that time did he habitually attend to his business?

A. He did in 1855, but I think he never did any heavy plate work at that time; only light work.

Q. 10. Up to when was he able to continue light work in his profession?

A. Well, I don't think he did any work at the office for about a year before he dissolved with Flagg. We went into the country that summer.

Q. 11. During the time that he was in partnership with Dr. Flagg, how did his illness affect his mental faculties?

A. Not at all; I think his whole object in giving up with Dr. Flagg, was that he might give more attention to this business; give more thought to it, and find out facts about it. He didn't seem contented with mere dentistry; the business of filling teeth and things of that kind, but thought that this invention would be a great thing for mankind.

Q. 12. Do you mean, by your last answer, to convey the idea that it was to improve, or to perfect the patent, or to obtain a patent; which of the two?

A. Both to improve it and to obtain it, and perfect it.

Q. 13. After his dissolution of partnership with Dr. Flagg, what did he do in reference to obtaining the patent prior to 1864?

A. Nothing, sir; he hadn't the means, but he never gave up the idea but what he should eventually get his patent. Indeed he made plans of what he should do when he did get it.

Q. 14. During this time, from the dissolution with Flagg in 1860 up to 1864, what was the condition of his health?

A. I don't think for about a year before he got his patent that his health was quite as good. In April, May, and June, before he got his patent, he was very sick, and we had to go away with him.

452 Q. 15. What was the nature of his illness?

A. This lung difficulty—a scrofulous humour, and he raised blood. I think the worry about trying to obtain his patent affected him very much, and made his head very much troubled.

Q. 16. When you had to leave for Europe, in what way was he affected differently than before?

A. We thought him in deep consumption and his physician thought he would never return to America.

Q. 17. At this time had you heard of a suit to test the validity of this patent, brought against a dentist of the name of Wetherbee?

A. Yes; it was tried and decided in Dr. Cummings' favor before we left for Europe; else we could not have gone, as the doctor had no means.

Q. 18. The year prior to his going to Europe, where was he?

A. In Boston, keeping house at No. 1 Asylum street.

Q. 19. Was the doctor examined as a witness in the Wetherbee case?

A. No, he was so very sick he could not be.

Q. 20. Do you know whether there was any reason why he could not have been examined at his house at this time?

A. Because I think his head was so much diseased that they couldn't get right answers. That was what Dr. Walker told me and Dr. Thayer also.

Q. 21. How long did this mental condition of the doctor continue?

A. Well, really, sometimes, I don't think he is quite right now; for months; he never seemed quite right until he went to Europe and had the worry off his mind.

Q. 22. Since he has been living on a farm, how has his mental condition been?

A. I don't like to say it, and don't think he would like me say it, but at times I think he is not quite right.

Q. 23. Is it that his mind wanders, or is feeble?

453 A. Well, he seems strange at times, I can't express it to you; my daughter and I often speak of it.

Q. 24. Physically, is he able to leave the house?

A. He gets up at one o'clock, takes a cup of coffee, which I carry him, sometimes goes out on the piazza, takes a cup of milk, and generally

goes to bed somewhere about eight o'clock; now and then gets to the barn, but not more around than that; he can't ride.

And in answer to direct interrogatories resumed, 'he saith:

Q. 25. Is or is not Dr. Cummings in such condition of mind that he could be relied upon to understand and answer properly interrogatories and cross-interrogatories in regard to the history of his connection with this invention, if he should be produced as a witness?

A. He is so nervous, and easily agitated, and his mind so unsteady that I don't believe he is fit to be examined as a witness.

FRANCES M. CUMMINGS.

I, N. Austin Parks, a notary public, duly authorized, admitted, and sworn, within and for the county of Suffolk, in the Commonwealth of Massachusetts, in the United States of America, residing and practising in Boston, in said county, do certify that, on the eighteenth day of August, A. D. 1869, I caused to appear before me Frances M. Cummings, a witness on behalf of the complainants in the above-entitled case; and, that 'he having been duly sworn to testify the whole truth and nothing but the truth, relating to the matters at issue in the same, *his* several answers to the interrogatories propounded to *him*, were by me
454 reduced to writing in *his* presence, and by *him* subscribed in my presence, and are hereto annexed; and that both parties were present by their respective counsel.

In testimony whereof I, the said notary, have hereunto subscribed my name and affixed my notarial seal of office this eighteenth day of August, annoque Domini, 1869.

Quod attestor.

[L. S.] N. AUSTIN PARKS,
Examiner and Notary Public, County of Suffolk.

455 *Examination of David W. Ropes.*

NEW YORK, *August* 21, 1869.

DAVID W. ROPES, being duly sworn and examined as a witness in behalf of the complainants.

Q. 1. What is your name, age, residence, and occupation?

A. David W. Ropes; 54 years of age; reside in Orange, N. J.; vice-president of the India Rubber Comb Company, of New York.

Q. 2. Do you know Robert Haering; and if yea, how long have you known him?

A. I do know him, and have known him for about ten or twelve years.

Q. 3. Do you know what the general reputation of Robert Haering is for truth and veracity? and if yea, state what it is.

A. I do; it is bad.

Q. 4. From such reputation would you believe him under oath?

A. I would not.

Cross-examined:

Q. 5. You have stated that you know the general reputation for veracity of Robert Haering. From whom did you derive that knowledge?

A. From parties who have heard him testify in cases in court, and his testimony *were* contradicted by two or more credible witnesses, and from others who have known him as a persistant infringer of the Goodyear patent, and a violator of an injunction under which he was placed for such injunction.

Q. 6. Do you consider that to be a violator of the injunctions issued under the Goodyear patent, is to have a very bad reputation for truth and veracity?

A. I do not; and my answer does not imply that I do.

456 Q. 7. Whom did you refer to as the parties from whom you have derived your knowledge of Mr. Haering's character for veracity, who you say heard him testify in court?

A. I cannot name any one in particular now, there were many present at such examination, and his testimony was generally commented on by those who' I conversed with on the subject.

Q. 8. Were they witnesses in those suits?

A. I do not recollect whether they were or not.

Q. 9. Can you name one who was not a witness who expressed such opinion?

A. I cannot now name any one who' I know to have been present at such examination, but I remember Conrad Poppenheusen for one, Frederick Konig, for another, W. J. A. Fuller, for another, have expressed such opinion.

Q. 10. Were Poppenheusen and Konig parties complainants in this case?

A. Mr. Poppenheusen was, Konig was not.

Q. 11. Were they both largely interested in the event of the suit?

A. They were.

Q. 12. Was Mr. Fuller counsel in the case?

A. I think he was.

Q. 13. On which side.

A. For the defendant.

Q. 14. After this case he became solicitor of the Goodyear company, did he not?

A. He did.

Q. 15. What were these cases you have referred to?

A. I don't recollect the title of them; one was Goodyear vs. The New York Gutta Percha and Hard Rubber Company, and the other was Poppenheusen vs. Dixon.

Q. 16. Who succeeded in the Dixon suit?

A. It was decided in favor of the plaintiffs.

Q. 17. Have you heard any other expression of opinion in regard to the character of Mr. Haering, except as given in connection with his testimony in their cases?

457 A. I have in connection with the report that he had turned States evidence in a case in which he was charged with counterfeiting United States money.

Q. 18. From whom did you hear this?

A. I cannot now recollect who it was.

Q. 19. When was it?

A. Within ten days.

Q. 20. Since he was examined in this case?

A. I don't know when he was examined.

Q. 21. Was you not in this room when he was being examined in this case?

A. I think not; I don't recollect that I have seen him for six months.

Q. 22. And these are your entire means of knowledge of his character?

A. I think I have heard others express the same opinion, but I cannot name the parties.

Q. 23. Is not the main cause of the parties interested in the Good-

year patent speaking against his character due to the fact that he was always a defiant opposer of the Goodyear patent, and his claiming that it was an unpatentable claim?

A. I cannot testify as to the cause; I can testify as to the fact.

Q. 24. Are not all those who consider his character bad, interested, directly or indirectly, in the Goodyear patent?

A. I don't know.

D. W. ROPES.

Sworn to before me this 21st day of August, 1869.

JOHN SHIELDS,
Examiner.

458 *Examination of Charles Goodyear, jr.*

NEW YORK, *August* 22, 1869.

CHARLES GOODYEAR, JR., being duly sworn and examined as a witness, on behalf of the complainants, testified.

Q. 1. What is your name, age, residence, and business?

A. Charles Goodyear, jr.; 35 years of age; New Rochelle, N. Y.; merchant.

Q. 2. Did you ever live in New Haven, and how long?

A. I did; from 1848 to 1852.

Q. 3. What was your business during that time?

A. I was engaged in making experiments in the application of India-rubber to new uses.

Q. 4. Was there, during that time, at Charles Goodyear's place in New Haven, a heater, such as is used to vulcanize hard rubber?

A. There was.

Q. 5. When was it first brought there?

A. In the year 1850.

Q. 6. For what was it used, and who used it?

A. It was used for the purpose of vulcanizing articles of India-rubber by myself and other persons employed by my father for that purpose.

Q. 7. Who where those other persons?

A. Chiefly Austin G. Day and a man by the name of Homan.

Q. 8. Was Robert Haering in the employ of your father in New Haven; and if yea, in what years?

A. He was, during the period I have stated.

Q. 9. What was his business there?

A. He was employed as a lithographer, and during the latter portion of that period he was also sometimes employed in making plaster casts for moulding various articles of India-rubber.

459 Q. 10. What articles were vulcanized at Mr. Charles Goodyear's place, while you were there?

A. Samples of India-rubber globes, inkstands, canes, whip-handles, knife-handles, combs, boxes, sheets of hard rubber, tubes, musical instruments, buttons, and medallions.

Q. 11. While you were in New Haven were experiments made at Charles Goodyear's place for the purpose of applying rubber to dentistry?

A. There were none.

Q. 12. Before the heater was brought to Mr. Goodyear's had Haering any knowledge of, or skill in, the art of vulcanizing rubber?

A. He had not.

Q. 13. While you were there did Haering acquire the art of vulcanizing; and if so, to what extent?

A. He might have done so in an imperfect manner.

Q. What did Haering have to do with the vulcanizing done by you?

A. I do not think he had anything to do with it at that time, further than to place the articles to be vulcanized in charge of the persons above named to be vulcanized.

Q. 15. How much was the heater in use while you were there, and who used it?

A. It was in use nearly every day, either by myself, Austin G. Day, and said Homan who was the engineer, and also employed to superintend this heater.

Q. 16. When did you first hear that a rubber base for teeth had been vulcanized in said heater by said Haering?

A. I never heard of it until, I think, I read it in the deposition made by said Haering, I think, in the year 1868.

Q. 17. How long has the art of coloring vulcanized rubber with vermillon been known to you?

A. The art of coloring vulcanized India-rubber with vermillon was known to me long prior to the dates above mentioned—I think in soft vulcanized rubber as long ago as 1846 or 1847.

Q. 18. Has Haering been in your employ since he left New Haven; and if so, how much?

460 A. He was employed by my father under my superin'dence during a portion of the years 1858 and 1859.

Q. 19. Have you ever seen him write?

A. I am familiar with his handwriting, having often read his letters, some of which came into my possession as executor of my late father, and I have also seen him write.

Q. 20. Look at Exhibit "R. Haering," and state whether the signature thereof is his or not?

A. It is.

Q. 21. What is the character of Robert Haering for truth?

A. It is bad.

CHARLES GOODYEAR, JR.

Sworn to before me this 22d day of August, 1869.

JOHN SHIELDS,
Examiner.

461 *Deposition of Josiah Bacon.*

JOSIAH BACON being duly sworn, doth depose and say, in answer to interrogatories propounded to him by Cha's F. Blake, esq., of counsel for complainant, as follows, viz:

Q. 1. What is your name, age, residence, and business?

A. Josiah Bacon; thirty-six; Boston; treasurer Goodyear Dental Vulcanite Company.

Q. 2. Will you look at exhibit, marked "R. Haering," and state what you know in regard to the history of the affidavit of Robert Haering, which forms part thereof?

A. I went to New York and had an interview with Haering, to ascertain what information Haering could give of the early history of the use of rubber in dentistry, for the purpose of using such testimony in the case of the Dental Vulcanite Company vs. Wetherbee, if desirable. I took notes of such statements made by him, returned to Boston with such notes, and submitted the same to our counsel, Causten Browne, esq., who drew up an affidavit embodying such facts, which is the

exhibit aforesaid. Said affidavit was then sent to Haering, at New York, with the request that he would examine the same carefully, and if found correct that he would sign and acknowledge, and return the same to me; and I received it back from him in the form that it now is in said exhibit. I acknowledged its receipt by letter, dated
462 March, 31st, 1865, copy of which is hereto annexed, marked Exhibit H.

Q. 3. Where has this affidavit been, since received from Haering?

A. From that date till November, 1868, when we desired to use it in the United States circuit court for the district of Rhode Island, it has been in the possession of Causten Browne, esq.

Q. 4. Have you received any letters from said Haering relating to the subject-matter of said affidavit; if yea, produce them and annex them to this deposition.

A. Since I received said affidavits from Haering, I received the three letters, marked I, J, K, annexed hereto.

And in answer to cross-interrogatories propounded to him by John A. Foster, esq., of counsel for respondent, deponent saith as follows, viz:

Cross-examination:

Q. 5. What was your business in 1852?

A. I was engaged in mercantile business and continued in it till 1864.

Q. 6. What was that business?

A. A large portion of the time was with the firm P. H. & J. S. Bacon, of San Francisco, and resident there, and the balance of the time on my own account.

Q. 7. When did you become acquainted with Dr. John A. Cummings?

A. About July, 1864.

Q. 8. State the circumstances of your becoming acquainted with him on this occasion.

A. I was introduced to him by mutual friends with a view of engaging with him in the management of his patent recently granted.

Q. 9. Was you aware of his application for a patent before his obtaining it?

A. I was not.

Q. 10 Was you aware of any invention similar to that for which he obtained his patent, prior to 1864?

463 *Q.* I had seen rubber dental plates in dental show-cases, but knew nothing regarding their manufacture or the invention.

Q. 11. State what agreement was made, if any, between you and Dr. Cummings, in regard to the introduction of his invention?

A. After much discussion it was decided to form a stock company to hold and manage his patent, and I was employed to draw up the necessary papers and assist in the formation of said company.

Q. 12. When was the Dental Vulcanite Company incorporated?

A. In August, 1864.

Q. 13. Who were the corporators?

A. Geo. P. Sanger, John A. Cummings, Josiah Bacon, and Messrs. Gavett, Flagg, and others.

Q. 14. At this time who owned the patent?

A. Cummings, Flagg, Osgood, and Gavett..

Q. 15. Did the company afterwards assign the patent to yourself; and if so, when and why?

A. They did, July 17th, 1866. I held it in trust for a joint stock association, then just formed, entitled Goodyear Dental Vulcanite Company.

Q. 16. What was the consideration of this transfer, if any?

A. I held said patent in trust for a new corporation about to be formed when it was to be assigned to that corporation, and I was to receive as trustee for the old corporators, a proper amount of stock in the new company, at the same time another company, the Dental Rubber Company, then owning exclusive dental license under the Goodyear patent were to convey to the new corporation such exclusive license also.

Q. 17. Is this new company the complainant in this action?

A. It is.

Q. 18. Are you an officer in that company; and if so, what position do you hold, and how long have you held it?

464 A. I have been its treasurer since its incorporation, January 7th, 1868.

Q. 19. Do you know anything in relation to the original issue of letters patent to John A. Cummings as to how such letters were procured, or what means were used to procure such patent, or any matter in respect to it, other than that such letters-patent were issued?

A. I do not.

Q. 20. You became quite intimate with Dr. Cummings, did you not, after the incorporation of the company?

A. I did.

Q. 21. Have you on any occasion conversed with him respecting the circumstances of how he came to originate his discovery or invention?

A. Yes, often.

Q. 22. Did he, on any such occasion, allude to notices that he had seen in journals, or otherwise, of the use of gutta-percha as a basis for dental plates in Europe or in this country?

A. He did not.

Q. 23. Did he ever tell you when he first conceived the idea of his invention?

A. He did; he said, about 1851, he stated that he had been thinking of it nearly a year before he filed his caveat.

Q. 24. Did he ever tell you when he made his first plate of hard rubber; and if so, when?

A. He did not fix any fixed date, merely stating that he was at work experimenting nearly a year before filing his caveat.

Q. 25. When did you first become acquainted with Robert Haering?

A. Early in 1865.

Q. 26. How did you make his acquaintance?

A. I ascertained or saw him referred to in the course of my examination of voluminous papers of Dr. Cummings, as knowing something of the history of rubber in dentistry, and sought him out for the purpose of using him as a w'tness in the Wetherbee suit, then pending, if desired.

465 Q. 27. Did you have the assistance of Dr. Flagg in finding Haering?

A. I did.

Q. 28. Did Dr. Flagg tell you what Haering said in relation to matters afterward detailed in the affidavit of Robert Haering?

A. He did not.

Q. 29. Did you meet Haering before or after he made his agreement with Dr. Flagg?

A. I think it must have been afterward.

Q. 30. Did you not pay him, for Dr. Flagg, the amount then due him under that agreement?

A. I remember paying him some money, sent by Dr. Flagg—a small amount, I think.

Q. 31. Was it on this occasion that he made the statements detailed by you in your answer to the second question.

A. It was.

Q. 32. State in detail that conversation so far as it relates to hard rubber for dentistry?

A. That conversation is embraced entirely in the affidavit given by said Haering.

Q. 33. Can you not give any other answer to the last question than this?

A. I cannot, except to repeat the substance of that affidavit.

Q. 34. Did he on this occasion make any allusion to the fact that he had applied for *a* letters-patent for a similar invention?

A. He did not.

Q. 35. Did you to him?

A. I did not.

Q. 36. Was you not aware that he had made such application?

A. I was not.

Q. 37. When did you first become acquainted with that fact?

A. After the commencement of this very suit.

466 Q. 38. How long a conversation did you have with him on this occasion?

A. Perhaps an hour or more.

Q. 39. Did you have anything to say to him in regard to his experimenting with the color of rubber?

A. We had some conversation, and he showed me the practical result of his experiments.

Q. 40. Have you ever been indi'ted for any offence in any court of the United States?

A. No, I have not.

Q. 41. Were charges not preferred against you in Waverly, New York State? If so, what was the character of them.

A. There were; for libel.

Redirect examination:

Q. 42. State the circumstances of charges above alluded to?

A. A license was issued to one Smith, a dentist, he paying therefor in a bank-check; said check had payment esstopped by said Smith, in consequence of which I revoked his license by public advertis'ment, stating in the advertisement that the license under which said Smith claimed to use rubber was procured by fraud, in passing a worthless bank-check. The above advertis'ment was the ground of the above suit.

Q. 43. Is that suit still pending?

A. It is not. Smith has settled up and withdrawn the suit.

JOSIAH BACON.

467 EXHIBIT H.

BOSTON, *March 31st*, 1865.

ROBERT HAERING, Esq.,
No. 100 W. 32d st. bet. 6th & 7th Avenues, New York.

DEAR SIR: Yours is at hand with the affidavit, for which I thank you.

I send you a copy of the affidavit that you may have it to refer to, should you wish to.

Dr. Flagg says he will write to you in a day or two, when he gets some experiments ready to send you.

I think Flagg will be in New York again in a short time.

I remain yours truly

JOSIAH BACON, *Treas.*

Ex. H, N. A. P., *Ex'r.*

EXHIBIT I.

Ex. I, N. A. P., *Ex'r.*]

NEW YORK *Aug.* 31*st*

DR. BACON,

DIER SIR Your letter is on hand I lernd you was loking for me, or one my sons without suces I am surry but I am shure you will find some one from 8 to 3 O'Clock exept noon time, please direct letters as usual and say Old Number, if you send the money by Express will been all night.

Inclosed I send you a letter of Mr Gill, If et benefitt Your Com-
468 pany I will answere et and tell the truth ifn to then et stay where et is, please send the letter Back to me.

Yours trule

ROBERT HAERING.

EXHIBIT J.

Ex. J, N. A. P., *Ex'r.*]

NEW YORK, *Aug. 26th*, '65.

MR. ROBERT HAERING,
569 8th Avenue, New York.

SIR: A patent suit is pending in the United States circuit court in Boston, for infringing a recent patent for the application of hard rubber to dental purposes; making hard rubber plates, or plates for holding artificial teeth; in the evidence already taken refference is made by one or two witnesses, to yourself as having made hard rubber plates for artificial teeth, many years ago:—I am one of the counsels for the defence in the pending case; and I wish to find out what you did, and how long ago, by way of applying hard rubber to dental purposes—whether you made plates, gums, or teeth, of hard rubber?—and, if so, when, and where, for the first time?—and whether you ever was acquainted with Dr. John A. Cummings, a dentist, of Boston.

My object is to examine you as witness for the defence in said suit; if you was before said Cummings, in the application of hard or vulcanized rubber to dental purposes.

Your answer to these inquiries, can be sent in a letter, directed to G. S. Boutwell, Esq., No. 12 Studio Building, Boston; he is associate counsel for defence.

Truly

J. GILES.

You can also address me, at Boston, I am there part of the time.

J. GILES.

469 EXHIBIT K.

Ex. K, N. A. P., *Ex'r.*]

NEW YORK, *Sep.* 14*th*, 1864.

MR. J. GILES,

DIER SIR Your letter is on hand, what I can state to you about dentel buisenes is.

In 1853, I mad a number Sett of Rubber plats for Mr. Bavins some whit Antefishel teet Mr Bavins told to me, that this teeth belong to Dr Cummins in Boston and as soon he pay him Mr. Bavins will pay me for my trouble but not recived ane thing myself

I do not know Dr Cummins

Yours respectfully

ROBERT HAERING.

(This is a copy of the letter sent to Mr. Giles.)

I, N. Austin Parks, a notary public duly authorized, admitted, and sworn within and for the county of Suffolk, in the Commonwealth of Massachusetts, in the United States of America, residing and practising in Boston, in said county, do certify that, on the 9th day of September, A. D. 1869, I caused to appear before me Josiah Bacon, a witness on behalf of the complainants in the above-entitled case; and, that he having been duly sworn to testify the whole truth and nothing but the truth, relating to the matters at issue in the same, his several answers to the interrogatories propounded to him were, by a person ap-
470 pointed by me, reduced to writing in his presence, and by him subscribed in my presence, and are hereto annexed; and that both parties were present by their respective counsels.

In testimony whereof I, the said notary, have hereunto subscribed my name and affixed my notarial seal of office, this ninth day of September, annoque Domini, 1869.

Quod attestor:

[L. S.]

N. AUSTIN PARKS,
Examiner and Notary Public, County of Suffolk.

471 ADDITIONAL TESTIMONY FOR RESPONDENT.

Examination of Robert Haering, taken this 13th day of September, 1869, on behalf of the defendant.

ROBERT HAERING, being duly sworn, testifies as follows:

Q. 1. You have had the deposition of Dr. G. H. P. Flagg, of Boston read to you, have you not?

A. Yes, sir.

Q. 2. The one taken on the 18th day of August, 1869?

A. Yes, sir.

Q. 3. In this deposition he relates a conversation had between himself and you in the fall of 1864, and in which he states that you said you had found out that Dr. Cummings was making an application for a patent, and said nothing but what (he) Cummings was the original inventor. Did such conversation take place?

A. I spoke to him. I said I had heard that he, Cummings, had filed a caveat. He spoke to me about Bevins had made samples for Cummings. I told him no, that I had made samples for Bevins, and that

he, Bevins, had sent them to Cummings. He asked me how Bevins knew I made them. I said he had seen some of my samples, and wished me to make him some.

Q. 4. How long after you had been by Dr. Flagg did this conversation occur?

A. This was before I was employed. We spoke this while I was at the Broadway Hotel, where I lived.

Q. 5. How many times did you have conversations with him about Cummings?

A. I don't remember that I had any more than this one; but I had three or four with him about Bevins.

Q. 6. State the substance of these conversations.

A. Once he asked me what I recollected about Bevins. He said that it was astonishing to him how Bevins should know how to make
472 rubber, when he was employed solely on cotton. I told him how it was—that it was all done in my shop.

Q. 7. Did he ever ask you to make an affidavit?

A. Yes, sir.

Q. 8. When, and under what circumstances?

A. I cannot tell when, or in what year he asked me that. He once came from Boston, and was in a great hurry, and wanted me to make an affidavit that he wanted me to state the matter how I worked for Bevins; that I made the samples for Bevins. I told him I could not write correct English; that he should write it. Then he said he had not time—he would send it to me. He went off. I agreed to make an affidavit that I worked for Bevins, that is, that I made Bevins the samples. I don't recollect whether I named an affidavit. If I am not mistaken, I took an affidavit sent me, and took it home; and if so, signed it without reading it over.

Q. 9. About this time did you see Josiah Bacon?

A. I don't know whether I saw him before or after I had made this affidavit. I saw him at the Atlantic Hotel. I spoke to him about ten minutes.

Q. 10. You have read the affidavit which it is claimed you made in 1865?

A. Yes, sir.

Q. 11. In this conversation with Mr. Bacon, did you make him statements the substance of what is contained in the affidavit?

A. I understand that he wanted me to swear that I had made the samples which Bevins claimed he had made for Cummings; but I told him I had made samples for myself before that, and which I never showed to Bevins. He said to me that, if I made an affidavit accordingly, they would employ me as long as the company exists.

Q. 12. Look at the two letters attached to the deposition of Josiah Bacon, taken in this action, and state now whether you can say whether you made the affidavit referred to in one of them.

473 A. I guess I did; but I do not know what it contains.

ROBERT HAERING.

Cross-examination:

Q. 13. Will you please look at the letters annexed to Josiah Bacon's deposition, signed Robert Haering, and state whether you wrote them.

A. They are both of them my handwriting.

Q. 14. Will you look at the Exhibit "Flagg," attached to the deposition of George H. P. Flagg, and say whether you wrote it.

A. I wrote that.

ROBERT HAERING.

Sworn and subscribed to this 13th day of September, 1869.

474 ADDITIONAL TESTIMONY FOR COMPLAINANT.

Examination of Joseph E. Paine, a witness on the part of the complainants, taken on the 13th day of September.

JOSEPH E. PAINE, called and examined as a witness on the part of the complainant, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. Joseph E. Paine; age, 52; my residence is in Brooklyn, N. Y.; am in the employ of A. A. Low & Brothers, New York City.

Q. 2. Have you had experience in examining and comparing handwritings as an expert? And if yea, please state how long, and briefly what.

A. I have been in the habit of comparing handwritings for many years, but my experience in comparing handwritings in courts in forgery cases has been for the past seven or eight years. I have been employed in the case of Hunter vs. Cisco, and case of Mandell vs. Robinson in Massachusetts, commonly known as the Howland will case. I was called in the case of The United States against Enright, in Brooklyn, N. Y.; also United States against Callicott, in Brooklyn; Bank of the Commonwealth against The Continental Bank, in New York City, and some fifteen or twenty more important cases. I am frequently called upon, in cases not in court, to give opinions as to questioned handwritings.

Q. 3. Have you ever seen the witness last examined, Robert Haering, write?

A. I have.

Q. 4. Will you please look at the signature now handed you on
475 exhibit marked "1, E. L., Jr., Notary Public;" and the exhibit marked "K, N. A. P., Jr.;" Exhibit "I, N. A. P., Jr.," attached to deposition of Josiah Bacon; and the Exhibit "Flagg, N. A. P., Jr.," attached to the deposition of George H. P. Flagg, and state whether or not, in your opinion, the signature to Exhibit "1, E. L., Jr." was written by said Robert Haering.

A. Robert Haering wrote all these signatures.

Q. 5. Please state briefly the reasons which lead you to this conclusion?

A. In the first place, the signatures to these exhibits have the same general scope of hand in writing the whole signature. I find also the same movement of the hand throughout. And secondly, the characteristics of Haering's hand, as found in the questioned signature, are identical with those of the signatures which I find in the Exhibits "1, E. L., Jr.;" "K, N. A. P., Jr.;" "I, N. A. P., Jr.;" and "Flagg, N. A. P., Jr." Thirdly, the relative position of the letters in the questioned signature is essentially the same as found in the signatures of the exhibits. Fourthly, the forms of the letters of the questioned signature are almost identically the same in every instance with those of the signatures to the exhibits, there being no other differences than those usually found in all signatures. And lastly, I find none of the indicia of simulation in the questioned signature, and have no reason whatever, of any kind, to doubt its being a genuine signature of Robert Haering.

J. E. PAINE.

Sworn and subscribed before me this 13th day of September, 1869.
J. SOLIS RITTERBAND,
Notary Public, New York City.

476 NEW YORK, *September* 13, 1869.

GORDON L. FORD, being by me duly sworn, in answer to interrogatories propounded to him, testifies as follows:

Q. 1. What is your name, age, residence, and business?

A. Gordon L. Ford, aged forty-five years; residence, 91 Clark street, Brooklyn, N. Y.; internal revenue collector, 3d collection district.

Q. 2. Will you look at the signature, Gordon L. Ford, on the second page of the exhibit marked "Exhibit No. 1, E. L., JR., Notary Public," and state whether or not it is your own?

A. It is.

Q. 3. Please state the circumstances under which you took the affidavit in question?

A. It was presented to me by some one representing himself to me as Robert Haering, and who subscribed the affidavit in my presence. I administered the oath as a commissioner for the State of Massachusetts.
GORDON L. FORD.

Subscribed and sworn to before me this 13th day of September, 1869.
EDWARD LYON, JR.,
Notary Public, Kings Co., N. Y.

477

478 *Decree referring cause to master.—Filed Sept. 8th, 1870.*

This cause coming on to be heard, and having been argued by counsel, upon consideration by the court it is ordered, adjudged, & decreed that the reissue of the patent originally granted to John A. Cummings on the day of , 18 , dated , upon which this suit is founded, is a good & valid patent, and that the defendant hath infringed the same & upon the exclusive right of the compl'ts thereunder; that the complainants recover of the defendant all gains & profits by him made from his said infringements of the said reissued patent by his unlawful taking, using, or vending to others to be used, of dentures or plates for artificial teeth, manufactured according to the process described in said reissued patent, embracing the invention secured
479 to the complainants by said reissue or any part thereof, at any time since; that it be referred to Charles Hart, esq., one of the masters of this court, to take & state to the court an account of all such gains & profits made by the defendant as aforesaid; that the compl'ts, on such accounting, have the right to cause an examination of the defendant' witnesses, or otherwise, and also the production of his books, vouchers, & documents, and that said def't attend at such accounting before said master from time to time, as said master may direct; also, that an injunction, according to the prayer of the bill, be issued against the defendant, to stand till the further order of the court.

Entered as the decree of this court per order thereof, this eighth day of September, A. D. 1870.

HENRY PITMAN, *Clerk.*

480 *Master's report.—Filed Sept.* 8, 1870.

The undersigned, master in chancery, to whom was referred the above cause by the decree hereunto annexed, respectfully report: That the parties appeared before him on this 8th day of September, A. D. 1870, the complainants by their counsel, Jabez S. Holmes, and the respondent personally, and by their agreement in writing, filed with the master, agreed that the master should report the sum of seventy-five dollars as the gains & profits accruing to the respondent, in violation of the rights of the complainants, as set forth in said bill of complaint, and the said sum is accordingly hereby reported by the master.

CHA'S HART,
Master in Chancery.

Master's fees, $10.

481 *Final decree.—Filed Sept. 8th,* 1870.

Upon the coming in of the master's report, and on motion of the complainant's counsel, it is ordered & decreed by the court that the said report be confirmed & established, and that the said defendant, Benoni E. Gardner, and his agents & servants, be perpetually enjoined from making, using, or vending to others to be used any one or more dentures or plates for artificial teeth manufactured according to the process described in the reissue patent, in said bill of complaint mentioned.

And the court doth further order & decree that the said defendant do forthwith pay unto the complainants the sum of seventy-five dollars, being the amount of profit found by the said master's report to have been received by the said defendant, Gardner, from the manufacture and sale of plates for artificial teeth manufactured according to the
482 process described in the said reissue patent, in violation of the exclusive right of the complainants.

And the court doth further order and decree that the said defendant, Gardner, do pay to the said complainants the costs of this suit, taxed at two hundred & forty-eight $\frac{84}{100}$ dollars, ($248 84,) entered as the decree of this court, per order thereof, this 8th day of September, A. D. 1870.

HENRY PITMAN, *Clerk.*

Motion for appeal.

DISTRICT OF RHODE ISLAND, *ss:*

Circuit Court United States, June term, 1870. Sept. 8th, 1870.

I, Benoni E. Gardner, claim an appeal from the decree of the circuit court in my case to the Supreme Court of the United States, next to be holden at Washington, on the first Monday of December next.

BENONI E. GARDNER.

483 Appeal allowed in open court. Bond to be filed within ten days, in the sum of five hundred dollars, with sureties, to the satisfaction of the district judge.

Bond on appeal.—Filed Sept. 17, 1870.

Know all men by these presents that we, Benoni E. Gardner, as principal, and Henry W. Gardner, as surety, all of the city of Providence,

and State of Rhode Island, are held & firmly bound unto the Goodyear Dental Vulcanite Company, a corporation established at the city of New York, under the laws of the State of New York, and Josiah Bacon, of Boston, in the Commonwealth of Massachusetts, in the full & just sum of five hundred dollars, to be paid to the said Goodyear Dental Vulcanite Company & Josiah Bacon, their certain successors, attorneys, executers, administrators, or assigns, to which payment well & truly to be made, we bind ourselves, our heirs, executors, and administrators, jointly & severally, by these presents, sealed with our seals, and
484 dated the 17th day of September, in the year of our Lord one thousand eight hundred & seventy.

Whereas, lately at a circuit court of the United States, held at Providence, within & for the district of Rhode Island, at the June term of said court, 1870, in a suit in equity depending in said court between The Goodyear Dental Vulcanite Company and Josiah Bacon, complainants, and Benoni E. Gardner, respondent, a decree was rendered against the said Benoni E. Gardner, and the said Benoni E. Gardner having in open court obtained an appeal to remove the said cause to the Supreme Court of the United States, to reverse the decree in the aforesaid suit at a Supreme Court of the United States, to be holden at Washington, on the first Monday of December next: Now the condition of this obligation is such, that if the said Benoni E. Gardner shall prosecute his said appeal to effect and answer all damages and costs if he fails to make his plea good, then the above obligation to be null and
485 void; otherwise to remain in full force and virtue.

BENONI E. GARDNER. [SEAL.]
HENRY W. GARDNER. [SEAL.]

Signed, sealed, and delivered in presence of—
J. S. HOLMES, as to Benoni E. Gardner.
HENRY J. JOHNSON, as to H. W. G.

SEPT. 17TH, 1870.

This bond approved.

JOHN P. KNOWLES,
Judge of the District Court U. S. for the District of Rhode Island.

486 DISTRICT OF RHODE ISLAND, *ss:*

Clerk's office circuit court, at Providence, this 9th day of November, A. D. 1870.

I, Henry Pitman, clerk of said court for said district, do hereby certify that the foregoing four hundred & eighty-five written and printed pages contain a true transcript from the records of said court in the cause Goodyear Dental Vulcanite Company vs. Benoni E. Gardner.

In testimony whereof I have hereunto set my hand and the seal of said court on the day & year above written.

[SEAL.] HENRY PITMAN, *Clerk.*

(Indorsement on cover:) No. 333. Benoni E. Gardner, appellant, vs. The Goodyear Dental Vulcanite Company & al. Rhode Island C. C. U. S. Filed 6th December, 1870.

[illegible]NER VS.

Supreme Court of the United States.

No. 133.

BENONI E. GARDNER,

APPELLANT,

VS.

THE GOODYEAR DENTAL VULCANITE CO. ET AL.

BRIEF OF

B. R. CURTIS, CAUSTEN BROWNE,

FOR APPELLEES.

BOSTON:
ADDISON C. GETCHELL, PRINTER, 53 WASHINGTON STREET.
1872.

BRIEF.

The appellant denies (1) validity of the re-issue patent in suit; (2) the title of the complainants; (3) infringement.

Seven distinct objections to the validity of the re-issue are set up in the answer, and these will be considered in order.

I. The appellant insists that the invention patented is not legally the subject of letters patent.

The invention does not consist in the mere substitution of particular material for other material which had been previously used for the same purpose and in the same way.

The invention consists in the production of a certain described article by a certain described mechanical process; which process, viewed as a whole, is new in itself.

The answer alleges (p. 9 of the record) that before the Cummings application or caveat, "dental plates, as a setting for artificial teeth, were made by dentists by *compressing* gold, silver or platina into a mould or die formed from and by means of a cast taken of the jaw or portion of the jaw of the patient, in substantially the same manner as that described in the said re-issued patent of the said Cummings, excepting that such metal did not require to be hardened by any baking or heating process."

The reference here is not to making dental plates of "cheoplastic;" for in that case the cheoplastic was not compressed, but poured into the mould in a melted state. (See p. of this brief, in reference to the alleged prior use of this material.)

The reference is to the well-known mode of making metallic plates.

But as the invention of Cummings relates to the production of plates which are to be *moulded and hardened by heat*, it involves essential differences from the process by which plates of metal, capable of being *hammered* or *compressed* to shape, were made.

Thus, after describing (p. 22) the usual wax impression from the mouth, and the plaster cast made from that impression and

exactly resembling that part of the mouth from which it was taken, and the formation in the plaster cast of a wax plate of the form of the intended plate, and the adjustment of the teeth in proper position against the edge or ridge of this wax plate (all of which belongs to the mode of making metallic plates), Cummings proceeds to describe certain operations which, it will be seen, are required for making plates of material which is in a soft and plastic state, and afterwards hardened in that form and position, as *distinguished from* plates of material which is hammered or swedged to the required form. He says, —

"The wax plate and gums, with the teeth adhering thereto, is now set upon the original plaster cast of the corresponding part of the mouth, and plaster is poured all around, up to about the lower edge (as it lies) of the wax plate; the margin, or outlying surface of plaster, is oiled or varnished, and plaster poured over the whole, forming a complete mould of the plate and teeth. Upon the opening of this mould the wax is warmed and removed, so as to leave the teeth adhering in the plaster mould in exactly the relative position they are to occupy in the hard-rubber plate. The teeth are provided with pins, *c*, *c*, projecting therefrom in such manner that the rubber which is to constitute the plate will close around them, and by means of them hold secure the teeth permanently in position. The plaster mould, with the teeth adhering therein, as just described, is now filled with soft rubber, a little at a time, pressed in with the finger, or in any other convenient way; and care is to be taken that the rubber is made to completely fit into the cavities and around the protuberances, including the pins, and is filled in to the depth or thickness desired to form the plate. I then lock the rubber plate in position by shutting the other half of the plaster mould over it, to insure its retaining its exact form while moulding, and then heat or bake it in an oven, or in other suitable way."

No such mould as is here described, *i. e.*, giving the contour of both sides of the intended plate, and also the front of it, with the teeth set therein, in just the position which they are to occupy with reference to the entire plate, so that nothing remains but to fill the whole hollow of the mould with the material of the intended plate, including the fitting of the material around the teeth, and harden it in that position, *ever existed before*.

Into such a mould there is put a material having, for the purposes of its intended use, the substantial character of that described in the patent; viz., plasticity to permit it to be so manipulated as to fit around the teeth, and otherwise receive exactly the required form; the capacity of being made hard by the application of heat, without material change of form; the property of toughness or strength, even where the plate is required to be very thin; the property of possessing and retaining in use (resisting in this

respect the action of acids, &c., in the mouth) sufficient rigidity for the purpose of mastication, and at the same time being pliable enough to yield a little to the motions of the mouth.

The invention consists in, first, the conception of such a new use of a material possessing these properties, and then the devising of the means by which such new use could be worked out, resulting in the production of a new and useful manufacture.

The great utility of the invention is shewn by the fact that as long ago as September, 1868, when the bill was filed, about three thousand dentists had taken licenses to use it.

II. The appellant insists that the invention is not new.

PRIOR PUBLICATIONS.

There are various foreign and other publications, of date prior to Cummings' invention, which are put in evidence for the defendant; but none of them contains a description of Cummings' invention. A brief account of each is here given.

1. TRUMAN. — February 15, 1849. p. 151.

(1.) Electro-gilding gutta-percha.

(2.) Making gutta-percha plates. Having got a model of the mouth in plaster, he constructs a metal frame or skeleton, which is inclosed in pure gutta-percha. The gutta-percha plate is provided with gutta-percha teeth fixed upon pins, which are soldered to the metal frame and project through the gutta-percha plate. After the plate is finished, the gutta-percha teeth are taken off from the pins, leaving the sockets empty. The surface of the plate and sockets is then electro-gilded, and the teeth fixed on to the pins and into the sockets by cement.

2. HANCOCK. — May 21, 1844. p. 161.

A method of making hard rubber, — nothing said about teeth or plates.

3. HANCOCK. — January 12, 1846. p. 177.

A method of making hard gutta-percha, — nothing said about teeth or plates.

4. HANCOCK. — May 15, 1846. p. 179.
A method of casting, moulding, pressing and stamping articles of gutta-percha or its compounds, to give them any desired shape or configuration, — nothing said about plates or teeth.

5. MONTGOMERIE. — 1847. p. 193.
Suggestions for mixing gutta-percha with caoutchouc and "gintaware" to make a hard compound, — nothing said about plates or teeth.

6. DELABARRE. — August 4, 1851. p. 195.
Suggestions for making *gum sockets of gutta-percha*, in which teeth are fixed by means of metallic pins applied hot.

7. TRUMAN. — 1851. p. 198.
An extract from the official report of the London Exhibition of 1851, to the effect that "E. Truman, inventor, 40 A. Haymarket," exhibited "patent artificial teeth with gutta-percha gums. Set of mineral teeth mounted on gutta-percha."

8. TRUMAN. — 1851. p. 199.
An extract from the official reports of the juries of the London Exhibition of 1851, stating that "quite recently, by the exertions of Mr. Truman, a lump of colored gutta-percha moulded into the form of a jawbone had been found capable of holding together artificial teeth," &c., &c.

9. AMERICAN JOURNAL OF DENTAL SCIENCE. — January, 1852. p. 200.
The editor states that he has had a letter from a Mr. Robert Parsons, stating that his (Mr. Parsons') brother had a gutta-percha base which he had worn some time, and had made some like it for others. But Mr. Robert Parsons does not regard the material as suitable for the purpose.

The editor adds that, some six months before, he had received a letter from an English dentist, stating that *he* had succeeded in making a preparation of gutta-percha which he had used with entire success as a base for artificial teeth. The editor says, "We hope he will soon give us an opportunity of laying the results of his experiments before the profession."

THE CHEOPLASTIC PROCESS.

It is stated by Dr. Newbrough (p. 29), in the course of his testimony as a witness in this case, that a certain process has been in use for over twenty years, for making dental plates of a metallic compound known as cheoplastic; which process, he says, was in all respects the same as that described by Cummings, saving only the difference in the material employed, — cheoplastic in the one case, and rubber in the other.

(1.) This testimony was given on cross-examination (he having been subpœnaed by the complainants to prove infringement), his examination-in-chief having been confined to the question of infringement. Objection was duly taken to the reception of this testimony as being new matter not open on cross-examination, and this objection is now insisted upon; and it is submitted that the testimony ought not to be considered as evidence in the case.

(2.) The cheoplastic process differed in one essential particular from the Cummings process; viz., *there was no vulcanising*. The cheoplastic was hardened by mere *cooling*.

(3.) It was not *successful* previously to the invention of Cummings. Dr. Newbrough says (Ans. 34) it was only within a few years, perhaps fourteen or fifteen years [1853 or 1854], that it has been carried to a degree of perfection which would render it necessary to use for ordinary plates; that prior to that time it was used only in cases of defects from great absorption in partial sets of teeth in the lower jaw.

(4.) This defence is not set up in the answer.

THE PRIOR INVENTION OF HAERING.

It is by no means clear, upon the testimony of Haering and his family, that he did any such work till after the filing of Cummings' caveat.

We begin with the testimony of Robert Haering himself, p. 78. He has been engaged in manufacturing hard-rubber articles in violation of the Goodyear patent, and has been enjoined, and has been convicted of a violation of that injunction, and has

been imprisoned for twenty days for such violation. He has been recently arrested for counterfeiting, and pleaded guilty "until his trial would come on, when he would explain the whole matter as it was." See his cross-examination, answers 25-31, 47, 48.

He first says that he made his *first set* the latter part of 1850 or in 1851 (direct 5). Next he says that he knows he made it in July or August, 1851 (cross 91). Then he says he made his *next plate* in 1850 or 1851. When asked (cross 116) how he fixes the date of his making his first plate, he says it was "just before some presidential election." In the next answer he says "it was a long time before the election." And in answer to the question, "How do you know that it was before?" he says, "I can't explain it."

He says he began to make hard-rubber goods in 1849. (Ans. 82.) But he admits that he testified in a former suit that his experience commenced in 1851. (Ans. 105.) The same mistake of two years, it will be seen hereafter, will put his first working on hard-rubber plates, not in 1851, but in 1853, when he himself has said, in an affidavit to be hereafter referred to, that it did commence.

ADOLPHUS G. HAERING (p. 86) is the next witness. He is Robert's son. His last business was making hard-rubber goods in violation of the Goodyear patent, and he has been enjoined, with his father, from such violation. He had no regular business after that time, and earned no money, except "a little with cards," until he went into the employment of the defendant in the fall of 1869. He was arrested with his father on the charge of counterfeiting, and he states what articles were found in their possession at the time of the arrest. (Answers 32-43, 60, 68-70, 101-108.)

He says first that his father made hard-rubber sets in 1851. Adolphus was then *nine years old*. He says afterwards that he knows the year, because at that time he put up a "Pierce and King" flag on the top of the house. But Pierce and King were not nominated till 1852. He mentions another circumstance which fixes the time in his memory, namely, the breaking of his arm, which occurred when he was *about eleven years old*. He was born August 22, 1842, and was eleven years old August 22, 1853. He says, "It was previous to that I know he made those rubber sets; that is all that I can fix the time by." (Answers 3, 19, 22, 24, 132-134.)

It is plain that this witness gives no reliable evidence of any hard-rubber plates made by his father prior to May, 1852, when Cummings' caveat was filed, if earlier than 1853.

GEORGE W. HOMAN (p. 92) is the next witness. He first says that Haering shewed him hard-rubber plates "somewhere about the year 1850 or 1851." He undertakes to fix the time in two ways. First, that it was before Nelson Goodyear's death; but he afterwards says that he has no means of recollecting whether it was before or after Nelson Goodyear's death. Secondly, he undertakes to fix it by the place where he was himself at the time; but it appears that he lived there from 1851 to 1854. (Answers 5, 9, 32, 33, 21-25.)

He admits that he testified in a previous suit, that Robert Haering had nothing to do with hard rubber till after certain plaster moulds were invented, when he used to make knife handles and other articles in them; and that this was about a year before he left, — and he left in 1854. (Answer 48.)

CAROLINE HAERING (p. 96) is the next witness. She is the sister-in-law of Robert. She first says that Robert made hard-rubber dental plates between eighteen and nineteen years since, — that is, in 1850 or 1851; but she afterwards says that she had *the first set about two years;* that then he made a second set, which were not good, — too black; and then he made a set of *red gum.* And, upon cross-examination, she says that the red-gum set was made when she lived in Brooklyn; and she moved to Brooklyn about fourteen years before her examination, or in 1855: this would put date of making the first set, not in 1850-1851, but in 1853. (Answers 2, 4, 7, 17, 14.)

The last witness on this question is MARIA SCHWEITZER (p. 75). She is Robert Haering's sister. She first says (under date August, 1869) that Robert made a hard-rubber plate for her "eighteen or nineteen years ago, I cannot recollect now when." She afterwards says that at the time he made the plate she was living with her daughter at Fairmount, and that her daughter moved to Fairmount twelve or thirteen years ago; viz., 1856 or 1857. (Answers 2, 5, 28, 29, 21.)

This is the whole of the evidence introduced to shew the prior invention by Haering.

And, if it were satisfactory in other respects, it cannot be considered satisfactory as to the question of *time.*

But it is no more satisfactory on the question whether what Haering tried to do was *practically successful.*

ROBERT HAERING himself says that of the three sets made for Caroline Haering, neither was satisfactory. (Ans. 11, p. 78.)

CAROLINE HAERING says the same. (Ans. 7, p. 96.)

GEORGE W. HOMAN says nothing upon the subject.

ADOLPHUS G. HAERING says nothing upon the subject.

MRS. SCHWEITZER says of the set made for her, "I did not wear them. They hurt me. I didn't like them." (Ans. 10, p. 75.)

If the testimony were much more satisfactory, it would still require to be explained why these experiments of Haering, supposing them to have been made, as he says, in 1850-51, were not *followed up*.

HAERING says he kept his invention secret for "about two or three years" (Ans. 20, p. 79), because for everything he invented Goodyear promised him money, but never kept his word; and he thought he would keep this to himself.

This explanation of his delay and silence *will not do*. And there is no other suggested.

He made no application for patent till 1855, after Cummings had applied. He was rejected on (among other things) Cummings' producing application, and he withdrew his application; and it was never renewed till November, 1868, when it was renewed by Newbrough, who is the licensor of the defendant in this case.

Wheat, p. 72, answer 6.
Haering's affidavit, p. 84.

But we submit that this whole claim of Haering's to have made the invention at any tiime before Cummings made it, is disposed of byH aering's own affidavit, printed at p. 84. Haering denies his signature to the affidavit, or that he ever swore to it.

But the genuineness of the signature is proved, and the letter which Haering wrote accompanying the affidavit, when he sent it on from New York to Boston, is produced in evidence.

Flagg, p. 258, answers 5-7.
Haering's letter, p. 262.
Bacon, p. 268, answers 1-4.
Paine, p. 75.
Ford, p. 276.

The affidavit made March 29, 1865, made when Haering's application, rejected upon Cummings' prior application, among other things, had been *withdrawn eight years*, and more than three years before his application was renewed at the instance and for the benefit of Dr. Newbrough (under whom defendant claims to work as licensee), states that he was *employed by* BEVIN to make hard-rubber plates in, he thinks, 1853; that *until then he never knew of any such invention;* that at first he *supposed* BEVIN *was the inventor*, but afterwards *learned that* DR. CUMMINGS *was the inventor*. (It will be remembered that Bevin's work was done under the direction of Cummings.) There are other matters in the affidavit contradicting Haering, but this is surely enough.

THE PRIOR INVENTION OF BEVIN, &c.

The answer alleges prior knowledge and use of the invention by each of a large number of persons; which knowledge and use can be best understood by dividing the persons into two groups; one of them consisting of those who, it is claimed, had such knowledge and use *before* the application of Cummings for patent April, 1855, and the other consisting of those who, it is claimed, had such knowledge and use after that application, but before the application filed in 1864.

As to the latter class, it comprises all but Bevin, Haering and Mallett; and evidence of knowledge and use by the others after April, 1855, can have no pertinency if it appears that *all which is now patented was invented by Cummings before that date.*

We admit that the invention was practised by them after that date and before the application of 1864. But such practising was after the complete production of the invention by Cummings.

The appellant says that the mode described in the re-issue for making the vulcanite plates *became known* after April, 1855, and not from Cummings; and that then, and only then, the patented invention was complete.

It is certain that a plate answering to the patent description was filed as a model in April, 1855.

No other process is suggested, except that described in the patent, by which it could have been made.

The process was therefore known to *somebody* before April, 1855.

To meet this difficulty, the appellant takes the position that the plate which was sent as a model to the patent office in April, 1855, was obtained by Cummings from Bevin, and by Bevin from Mallett or Haering.

It has been shewn that what Haering did (after his own unsuccessful attempts) was done under direction of Bevin. (See Haering's affidavit, page 84.) It now remains to be shewn that Bevin and Mallett both worked under the direction of Cummings, and not otherwise.

It is clearly proved that Bevin never had practical knowledge of the invention in question here, until after he was made acquainted with Cummings.

A single witness, James W. Bartlett (page 163 of the record) speaks of an attempt of Bevin to make a hard-rubber plate for mineral teeth "just before August, 1853." The result was bad, and nothing further of any kind appears to have been done by him in the matter until he went into Cummings' employment late in 1853 or early in 1854. It also appears that about the same time that he tried to make rubber plates with mineral teeth, he had a plan (which was unsuccessful and abandoned) for making sets of artificial *teeth and plate* all of one piece of rubber. This is not the invention in controversy.

The correspondence which passed between Cummings (who lived at Boston) and Bevin (who lived at New Haven), and also between Bevin and Hurd, who introduced him to Cummings, is in the case, and strongly tends to prove that Bevin regarded Cummings as the inventor.

Record, p. p.

His son, William A. Bevin, testifies that he resided with his father at New Haven from 1852 to 1856, and talked with and assisted him in various india-rubber experiments; knew of his employment by Dr. Cummings; knew of his experimenting in *teeth and plate* of hard rubber and upon rubber filling before such employment; never heard him speak of doing anything, and never saw anything which he had done, in regard to rubber plates with mineral teeth attached, until after such employment by Dr. Cummings commenced; and *did*

hear his father speak of Dr. Cummings, during the time from 1852 to 1856, as the inventor of thehard-rubber plates.

See deposition of W. A. Bevin, p. 185, cross 58, 59.

JULIUS C. HURD, the brother-in-law of F. A. Bevin, who knew him twenty years; who saw him every few months; with whom Bevin was accustomed to talk often in regard to his new ideas or plans or experiments from time to time; whose confidential relations with Bevin appear from the fact that Bevin applied to him in 1853 to get his assistance in introducing his india-rubber *tooth-filling* to the favour of the Boston dentists, and who afterwards aided in negotiating between him and Dr. Cummings about the hard-rubber plate work, and wrote the agreement between them himself, — says, that until he introduced Bevin to Cummings in 1853-4, he never heard of his, Bevin's, having made or tried to make plates of hard rubber for the insertion of artificial teeth.

See deposition of Hurd. p. 221, direct 12.
See also his statements to Flagg, deposition of Flagg, p. 213, direct 46.

There are two certificates in the case, signed by Bevin, which deserve particular attention.

On the 21st July, 1855 (p. 194), Cummings writes to Bevin, "I have just seen Mr. Lincoln, patent agent, and he wished me to get the certificate of your wearing india-rubber plate for some eight weeks, &c., immediately. Will you have a strong certificate or affidavit drawn up, and forward to me immediately?"

On the *same day* Bevin replies (p. 244), "I did not know what use you wanted to make of this. As it would [have] been well to [have] sent me a copy of what you wanted. But I think this is all that is wanted, — a plain statement."

The certificate thus given by Bevin without conference or advice, and in ignorance of the use for which it was designed, and containing, for the most part, merely commendation of the hard-rubber plates, speaks of them as "constructed on the principle of Dr. J. A. Cummings of Boston."

See p. 35.

A second certificate was given by Bevin, 30th August, 1855, in which he says he has been "employed by Dr. John A. Cummings of Boston, to make samples of india-rubber plates for teeth," &c.

See p. 40.

These certificates were both given by Bevin for the purpose of assisting Cummings to get a patent for the very thing of which the appellant now asserts Bevin himself to have been the original and first inventor.

Assuming it to be shewn that Bevin had no practical knowledge of the invention till after he was employed by Cummings, we proceed now to shew that it was precisely *in that employment and from Cummings and before April*, 1855, *that he got his practical knowledge, and that that practical knowledge embraced the whole of what is now patented;* and in so doing we shall see the connexion of *Mallett* with the matter.

Cummings had filed a caveat in 1852. — See record, page 33.

In this caveat he speaks of his improvement as consisting in forming the plate "of rubber, or some other elastic substance, so compounded," &c., as to form a hard gum or whalebone gum. He says that by this improvement *the teeth can be baked into the gums.*

The properties of hard rubber were known at this time (Nelson Goodyear's patent for hard rubber having been taken the year before), and it was known that hard rubber could only be formed in a certain shape by being put into a mould of that shape while soft, and there made hard by heating.

As the teeth had to be baked into the plate, and the plate had to be in a mould, it is evident that some peculiar way of moulding which should include the setting of the teeth in the mould, and the disposition of the rubber in relation to the teeth, was to be devised before the invention would be considered as perfected.

Accordingly, he says in his petition that he has invented certain new and useful improvements *in the setting* and *plates* of artificial sets of teeth, and that he is desirous of further time to prepare his specifications, &c., and to make further experiments to mature his invention."

If this invention, as has been contended, consisted only in the *idea* of using hard rubber for dental plates, it was complete when it was suggested: and no "maturing" was necessary or possible.

But it did not consist in that alone.

Two things are plain: first, that study and experiment were required to perfect or mature the invention; secondly, that what was needed was *to perfect the details of the process indicated in the caveat, for the purpose of producing the article described in the caveat.*

To do so, required the skill and knowledge of a practising dentist and the skill and knowledge of a practical worker in hard rubber, combined.

Cummings was a practising dentist in Boston; Bevin had been for several years employed from time to time by the Hard-Rubber Co. in their rubber works at New Haven.

Late in 1853 or early in 1854 Bevin went into Cummings' employment, having been introduced by one Hurd to Cummings, who had inquired of Hurd for a suitable man to employ in his rubber-plate experiments.

Depo. of Hurd, page 220, ans. 5, 6.

Bevin went abroad in March, 1854, and returned in September, 1854.

Depo. of W. A. Bevin, page 180, ans. 5.

The testimony of Bevin's son is clear that before the father went to Europe at least one hard rubber denture was made by *Cummings and Bevin working together*. And in view of the fact that the caveat discloses the elements of the process of making these dentures, and the fact that Bevin knew nothing of practical dentistry, and the fact that he acknowledges afterwards that the invention was that of Cummings, there can be no doubt that *Bevin was working under Cummings' direction*.

Bevin junior says, "Cummings and my father made some experiments previous to his going to Europe" (Ans. 7). "These experiments were not made in my presence unless *packing a case* or mixing plaster" (Ans. 8). Packing a case is packing the rubber into the mould; mixing plaster was for the purpose of making the mould.

Depo. of W. A. Bevin, page 180.

He also says that his father "had a set previously to his going to Europe" in March, 1854 (Ans. 6, page 180,), and that that set was mineral teeth and hard rubber plate. (Ans. 66, page 186.)

Mallett, it will be seen, does not pretend to have done anything till the "summer or autumn" of 1854; and, as he says he worked with Bevin, who was absent till September, it was of course the *autumn* of 1854 that he began. And then he worked under Bevin, and as employee of Cummings, and was paid by Cummings accordingly.

See Receipt and Account, Record, page 174.

Mallett's employment began when Bevin returned from Europe, September, 1854, and doubtless consisted of such aid to Bevin as a dentist only could give, and Cummings (being in Boston) could not give himself. Mallett lived in New Haven, as Bevin did.

W. A. Bevin says that his father, during his employment by Cummings, was accustomed to receive from him sets of teeth in moulds ready for filling with the rubber, and then to fill them and vulcanise them and return them to Cummings, at Boston.

Record, page 186.

The method practised for making these early sets was similar to that described in the existing re-issue.

Depo. of Flagg, page 214, ans. 55, 55.

Flagg has examined the model deposited at the Patent Office with the application of 1864, and found it about the same in every respect as a set he saw in use by a Mr. Cooke in 1855, which set was shewn to Flagg by Cummings and Cooke in the latter part of 1854.

Depo. of Flagg, Record, page 214, ans. 51-52.
page 209, ans. 10-13.

The same witness testifies that in the early part of 1855, Cummings explained to him the whole process of preparing hard-rubber plates, and mounting artificial mineral teeth thereon.

Depo. of Flagg, Record, page 219, ans. 5.
page 252, ans. 5.

We submit that it is clear that the invention in all its parts was made, and made by Cummings, before the patent was applied for in April, 1855; and that the model filed with that application was made by him or under his direction.

III. The appellant insists that the re-issue in suit is not for the same invention for which the original letters patent were granted.

The same manufacture for which the re-issue in suit is taken, is described and claimed in the original patent, although the directions as to the process are more specific in the re-issue.

Opinion by Clifford, J., page 12.
Original patent, page 16 of the Record.
Seymour *v.* Osborne, 11 Wallace, 516.

IV. The appellant insists that the DENTAL VULCANITE COMPANY (which, as the assignee of Cummings, obtained the re-issue in suit and conveyed it by mesne assignments to the appellee) "WAS NOT A CORPORATION LEGALLY ORGANISED UNDER THE LAWS OF THE STATE OF MASSACHUSETTS, AUTHORISED AND COMPETENT TO TAKE AND HOLD SAID LETTERS PATENT" (p. 7).

Elsewhere in the answer it is insisted that "said Dental Vulcanite Company *was not a corporation legally organised under the laws of the State of Massachusetts*, and therefore had no power either to take and hold said letters patent, or to assign and transfer the same; and therefore the defendant insists *in bar of this suit*, &c. (p. 8).

The answer thus raises two questions: 1. Was the Dental Vulcanite Co. a corporation legally organised under the laws of the State of Massachusetts? 2. If so, was it authorised and competent as such to take and hold the said letters patent?

As to the first question, we refer to the articles of association printed at page 68 of the record.

The corporation so formed was within the purview of the General Statutes of Massachusetts, chapter 61, in pursuance of which it was formed.

The fact that these hard-rubber dentures are necessarily made to order only, and to fit the mouths of particular customers, does not furnish any substantial reason for excluding such a business from the benefits of the General Statutes.

As to the second question, the General Statutes, chap. 6, § 17, give to any corporation organised thereunder the right in its corporate name to "take, hold and convey such real and personal estate as is necessary for the purposes of its organisation."

This fully authorises the corporate purchase and holding (and, of course, assignment) of any letters patent covering their proposed business.

Indeed, the articles of association expressly state that the corporation is formed for the purpose of working under the Cummings patent.

The company so holding the patent may grant or withhold licenses under it, as shall best promote the company's interests.

If it sees fit to use its patent only by granting licenses, then each one of these licensees may be fairly regarded as the agent of the corporation, and his manufacture as its manufacture.

The corporation complainant, however, did in fact, soon after its organisation, and before the present suit was in contemplation, appoint by its vote certain dentists to be its agents for the manufacture of the artificial plates. (See deposition of *Bacon*, p. 227, direct 23, 24, 25, cross 1, and vote printed at p. 238.)

But whatever force there may be in the alleged misfeasance or nonfeasance of the complainant corporation, and whatever may be its effect in proper proceedings, it cannot avail the defendant here. The complainant is a legal corporation, holding the legal title to this patent, and in a suit against a third party and a mere wrong-doer, nothing more need appear.

As to the capacity of the appellant, the Goodyear Dental Vulcanite Co., to hold and enforce the patent, no objection is taken in the answer, and therefore none (if any exist) is now open.

V. The appellant insists that the re-issue in suit is void, because he "denies that said patent [original] was surrendered and the re-issues thereof obtained BY THE DENTAL VULCANITE COMPANY, as is alleged in said complaint; and avers that said surrenders were not made, nor said re-issues obtained, according to law."

The original patent was surrendered on a petition by Cummings, and re-issued to him instead of to the Dental Vulcanite Company, which was alredy his assignee of the original patent, and, of course,

of the right to any re-issue which might be obtained. The assignment on record at the time in the Patent Office was overlooked by the examiner. The re-issue (No. 1) being returned to the office for that purpose, the error was corrected as a merely clerical one (p. 254).

We submit that this was within the power of the Commissioner.

Grant *v.* Raymond, 6 Peters, 242.

It is true that the petition of Cummings in the case of this first re-issue asks that the re-issue be granted *to him*. But upon the papers themselves the Commissioner was bound to grant it only to the assignee appearing of record, the Dental Vulcanite Company.

Gayler *v.* Wilder, 10 How. 477.
Woodworth *v.* Stone, 3 Story, 750.

The second re-issue, which was taken merely to correct a date erroneously given in the first one, was granted directly to the Dental Vulcanite Company as Cummings' assignee; but the petition making the surrender and asking for the second re-issue was irregular in two particulars: it in *terms* surrendered the original patent instead of the first re-issue; and it was signed by Cummings, who had assigned his whole interest, instead of by the company, his assignees.

1. The surrender (in terms) of the original patent instead of the first re-issue, was a clerical error, which the Commissioner rightly corrected of his own motion. The first re-issue was that which was surrendered in fact, and was the only grant in existence to be surrendered. Or the error in question may be regarded as simply a misdescription of the thing surrendered, the identity of the thing itself being incapable of being mistaken.

There is no requirement of law that a patent be surrendered by writing. This is provided for by rule, for convenience and for certainty. But a mere manual delivery of the old patent by the person entitled to surrender it, or by his agent, with intention to surrender, and an acceptance and cancellation by the Commissioner, and the issuing of new letters patent for the same invention on an amended specification, would clearly be a substantial execution of the law providing for re-issues.

It is proved that the surrender in this case was, in fact, of the first re-issue, and not of the original patent.

See deposition of Gavett, p. 253 of the record.

2. On the second point the appellant will contend that, the surrender having been made by Cummings, who did not at the time hold any interest in the thing surrendered, it was ineffectual and void, and that the second re-issue was consequently granted without authority, and is void.

Several answers may be made to this proposition:

a. Cummings was at the time a stockholder in the Dental Vulcanite Company, which owned the first re-issue, and therefore may well be considered as holding such an interest in the patent as would support a surrender made by him, against a third party and mere wrong-doer.

b. A surrender made by Cummings, at the request and in the interest of the Dental Vulcanite Company, is the act of that company by adoption.

Potter *v.* Holland, 1 Fisher.
Woodworth *v.* Stone, 3 Story R. 750.

c. The position above taken, that the law does not require a written surrender, where cancellation and re-issue follow, covers also the point now under consideration. For a surrender in fact by the Dental Vulcanite Company of the first re-issue was made, and that surrender was acted upon by the Commissioner, by cancelling and re-issuing the first re-issue.

See deposition of Gavett, p. 253 of the record.

It will be said that evidence of the surrender by the Dental Vulcanite Company cannot be received to control the record which shews a surrender by Cummings. But it may be received to shew a surrender *also* by the company. Grant that Cummings' surrender was a nullity. Another surrender was in fact made by the company, and the act of the Commissioner of Patents in granting the re-issue is presumed to have been lawfully and regularly performed, and consequently to have been performed in pursuance of that surrender which the court decides to be the valid one.

The acceptance by the coporation of the re-issued patent is, by operation of law, a surrender of the former patent, because the re-issued patent is incompatible with the continued existence of the original patent.

Com. Dig. title Surrender, I., 1.

The acceptance of a new lease by parol, by a corporation aggregate which has a former lease, will operate in law as a surrender of

the former lease, though the corporation cannot surrender without deed. Now it can.

10 Coke, 67, b.

So the acceptance of any right or interest incompatible with the former right or interest is in law a surrender.

Shepherd's Touchstone, by Preston, 301-303.

VI. The appellant insists that the Commissioner had no power to grant the original Cummings patent under the circumstances stated on page 13 of the record.

Cummings' application was filed in 1855, and (after rejections by the examiner) was rejected by the Commissioner, February 6, 1856. Thereupon he became entitled either to *withdraw* his application (receiving a drawback fee of twenty dollars) or to "persist in his claim for a patent," by appeal from the Commissioner. See Patent act of 1836, § 7.

This court has decided that even after a withdrawal, the Patent Office could resume the consideration of the inventor's claim for patent under a new application, the old and the new constituting one continuous application if the withdrawal was with the intention of filing a new application.

Godfrey *v.* Eames, 1 Wallace, 317.

Where there is no withdrawal by the applicant (and *there was no withdrawal by Cummings*), his case remains pending before the Patent Office, subject to appeal from the Commissioner or to review by the Commissioner.

The Commissioner (after appeal taken) is to appoint the time within which the reasons of appeal are to be filed in the Patent Office; he is to notify parties to appear before the appellate judge in such manner as the latter shall prescribe; and the decision of the appellate judge is to "govern the further proceedings of the Commissioner in such case."

Patent Act of 1839, § 11.

These provisions clearly imply that the case is regarded as pending before the Commissioner, at least until an appeal is taken.

If it is pending before him, he can of course review his own decision.

In the present case he did review it; and he reversed it, on the ground that it was contrary to law.

The appellant insists that the Commissioner had no right to do so, because of Cummings' omission for a period of eight years to take any action in the case. We submit that he not only had a right to do so, but was bound to do so, unless the act of 1861 restrained him.

The law requires him to grant a patent on the filing of an application and the payment of the duty, unless he finds that the invention is not new, or that it was in public use or on sale with the applicant's consent or allowance more than two years before the filing of the application.

Act of 1836, § 7.

Even if he were satisfied that there had been an abandonment in fact by Cummings, he would have no right to refuse a patent, for no power is given him to try that question.

He certainly would have no right to hold the applicant disabled, by any length of delay before the office, from prosecuting his demand for a patent.

Blandy *v.* Griffith, 3 Fisher, 617.

The act of 1861 provided that "all applications now pending shall be treated as if filed after the passage of this act," and that "all applications for patents shall be completed and prepared for examination within two years after the petition; and in default thereof they shall be regarded as abandoned by the parties thereto, unless it be shewn to the satisfaction of the Commissioner of Patents that such delay was unavoidable."

If Cummings' application was covered by this act, so as to make it his duty to revive it within two years, that was subject to the judgment of the Commissioner whether the further delay had been unavoidable; and the Commissioner has concluded that question in favour of Cummings by granting the patent.

Allen *v.* Blunt, 3 Story, 744.
Colt *v.* Young, 2 Blatch. 473, 474.
Battin *v.* Taggert, 17 Howard, 84.

Of course we assume that the renewed application of Cummings, made in 1864, was for the same invention as that for which he had previously applied and been rejected. It clearly was, upon a comparison of the two specifications.

It is expressly admitted by the commissioner in his letter to the inventor (see page 46 of the record), in which he also admits that an error had been committed and a wrong done by the previous action of the office.

VII. The appellant insists that the invention of Cummings had been in public use or on sale, with his consent, more than two years before the application for patent.

That depends upon the question whether "the application" is to be taken as made originally in 1864, or to have been made in 1856 and revived in 1864. It appears that the invention went into general use about 1860.

The objection made to the patent under this head is *forfeiture*.

There is no instance of a patent held void by reason of forfeiture under any such circumstances as appear in this case; viz., where the applicant had never withdrawn his application, or done any act of acquiescence in its rejection.

And there are numerous cases in which, under circumstances such as this presents, the second application was held to be a continuation of the first, so as to prevent the working of any forfeiture.

Grant *v.* Raymond, 6 Potter, 244.
Adams *v.* Ives, 1 Fisher, 527.
Blandy *v.* Griffith, 3 Fisher, 616, and cases cited.
Singer *v.* Brausdorf, 7 Blatch. 533.

VIII. The appellant insists that there was a legal abandonment by Cummings' delay before the Patent Office, and that he actually abandoned his invention to public use before the application of March 1, 1864.

The suggestion of legal abandonment has been already considered.

As to abandonment *in fact*, the question is this:

Did Dr. Cummings at any time between the rejection of his first application, 6th February, 1856, and his second application, March 1, 1864, *intend to give up to the public the free use of his invention, without further claim of his as patentee?*

1. He had not, at any time during this interval, any *reason* to abandon.

Before the 6th of February, 1856, several sets made under his direction were in satisfactory use. And several others had been made which were quite as good as much hard-rubber work now regularly done in Boston by practising dentists.

Deposition of Mallett, cross 3, 4, 5, p. 171.
Deposition of Flagg, direct 46 and 47; p. 213; direct 52 and 53, p. 214.

From 1857 to 1864, the favour of the dentists towards the hard-rubber plates was steadily increasing, and it was obvious that the invention was one of such value that it is in the highest degree improbable that Dr. Cummings, believing himself to be the owner of it, should deliberately give up his exclusive right.

2. His conduct was such as to repel as strongly as possible any inference of abandonment drawn from mere lapse of time.

His partner, Dr. Flagg, with whom he formed a connection in November, 1855, which continued until July, 1860, was constantly and persistently urged by him to introduce it into their own practice, until Dr. Cummings found it impossible to overcome his partner's prejudice against the invention.

Flagg, p. 211, direct 35-40.

As soon as that partnership was dissolved, Dr. Cummings made haste to introduce the hard-rubber plates in the practice he was about to establish by himself.

Deposition of McDonald, p. 222, direct 5.

He was incessant and importunate in urging his attorney, Mr. Lincoln, to press his patent through the Patent Office, notwithstanding the rejection in 1856.

Deposition of Flagg, p. 215, direct 60-63.

See also the fact that on the 17th of January, 1859, the agent, Mr. Lincoln, sent to Washington for the papers, indicating the persistency of Cummings at that time.

In 1862 Cummings wrote to his friend, Dr. Tucker, a letter, in which he spoke of the hard-rubber plates as an invention of his own, which he was determined to secure.

Deposition of Tucker, p. 223.

In the same year he started for Washington to give his personal attention to the matter.

Deposition of Martin, p. 228, direct 11.

Dr. Cummings' agent, Mr. Lincoln, did not himself admit the justice of the rejection of the original application.

Deposition of Gavett, p. 226, cross 9.

Mr. Lincoln died in June, 1863, and by the 1st of March, 1864, a new application was made.

Deposition of Gavett, p. 224, direct 7, cross 8.

3. Apart from the positive proof of the persistency of Dr. Cummings between 1856 and 1864, the case shews facts which would suffice to explain his inaction if he had been inactive.

In 1860, when he parted from Dr. Flagg, he was in very straitened circumstances, and within a year from that time he was virtually ruined.

Deposition of Flagg, p. 214, direct, 56-58.

Between 1856 and 1860, the policy of the Patent Office underwent a change in the matter of granting patents of the class to which this one belongs.

Deposition of Gavett, p. 225, direct 12.
Goodyear, p. 205, cross 12.

But of this, the best evidence is in the fact that in 1864, without argument or modification of the claim which it had rejected in 1856, the Patent Office distinctly reversed its own action.

See letter at page 46.

IX. The appellant insists that the appellee is not the owner and holder of the patent.

The appellee's title appears at pages 23-26 of the record.

X. The appellant insists that he has not infringed the patent.

The appellant's mode of making hard-rubber plates, or dentures, is stated by Newbrough, pp. 27-29 of the record; in connexion with which see stipulation No. 2 on page 15. (In the stipulation, pages 48-51 are pages of the original.)

The appellant contends that he does not infringe, because he uses a kind of hard rubber which is, considered by itself, different in chemical composition from the Goodyear patented hard rubber, the only one in terms mentioned in the Cummings specification; in other words, he contends that he does not infringe the Cummings patent for the process unless he also infringes the Goodyear patent for the particular hard rubber mentioned in the Cummings patent.

But the Cummings patent refers not to any existing patent of Goodyear, but to his original patent, which had been surrendered and annulled at the time when Cummings' specification was made.

It is not controverted by the appellant that the "Newbrough" hard rubber, which he uses, although differing as a hard rubber from Goodyear's, has all those peculiarities which are essential in

the Goodyear rubber for the practical working out of the Cummings process, and which are recited at page of this brief.

At the time when Cummings' patent was issued, there was one known mode, and only one, of making hard rubber. To that he refers.

Goodyear could not, by reason of his being the inventor of his hard rubber, have had the right to make the Cummnigs manufacture. Why should the appellant have that right because his licensor has made an improvement (if it is one) on the Goodyear rubber?

The process employed by the appellant is clearly the same, in all substantial respects, as that which is described and claimed in the Cummings patent.

Causten Browne
B. K. Curtis
of counsel

Supreme Court of the United States.

Benoni E. Gardner,

Appellant,

vs.

The Goodyear Dental Vulcanite Company and Josiah Bacon,

Respondents.

BRIEF AND POINTS.

JOHN A. FOSTER,
S. J. GLASSEY,
Of Counsel for Appellant.

New York:
PRESS OF ANSON HERRICK'S SONS, BOOK AND JOB PRINTERS,
No. 16 SPRUCE STREET.
1872.

Supreme Court of the United States. 1

APPEAL FROM THE U. S. CIRCUIT COURT FOR THE DISTRICT OF RHODE ISLAND.

BENONI E. GARDNER,
Appellant,

vs.

THE GOODYEAR DENTAL VULCANITE COMPANY and JOSIAH BACON,
Respondents.

This is a suit brought by the Goodyear Dental Vulcanite Company, a corporation organized under the General Manufacturing Act of the State of New York, against Benoni E. Gardner, a dentist, practising in Providence, Rhode Island, for an alleged infringement of certain Letters Patent issued to one John A. Cummings, in June, 1864, for making dental plates of hard or vulcanized rubber.

The Bill of Complaint charges that on June 7th, 2
1864, Letters Patent were issued to John A. Cummings, for improvements in artificial palates or gums.

That July 13, 1864, said Cummings assigned the Letters Patent to the Dental Vulcanite Company, a corporation organized under the laws of Massachusetts.

3 That the patent was surrendered and a reissue made to them January 10, 1865, and that the Company again surrendered the same, and a new reissue of said patent was made March 21, 1865.

That on the 17th day of July, 1866, said Dental Vulcanite Company assighed said patent and reissues to Josiah Bacon, in trust. That said Josiah Bacon, on the 7th day of January, 1868, assigned the same to these complainants, who are the owners of the same.

4 That said Cummings, his assigns, and the complainants, have always made, used and vended, said improvement so patented, and maintained exclusive possession of said invention, and never acquiesced in any invasion of or infringement of these rights.

That three thousand dentists have taken licenses from complainants, and submitted to their claims.

That in October, 1864, one Isaac J. Wetherbee infringed upon the same, and the Dental Vulcanite Company filed their Bill of Complaint against him, and he filed his Answer, denying the validity of said Letters Patent, and alleging that the said Cummings was not the original or first inventor, but that many
5 persons in the United States and in Europe, had used and practised said invention before Cummings' alleged invention.

That the same was heard upon proofs, before Hon. Nathan Clifford, and in May, 1866, he delivered his opinion upon all the points at issue, and ordered judgment and a final decree for complainants.

That the particular kind of rubber used by said Wetherbee, was that compounded pursuant to the

specification of the patent of Nelson Goodyear, of 6
May 6, 1851, being the kind of rubber described in Cummings' patent.

That since that time, Letters Patent have been granted for various compounds of hard rubber, with greater or less amounts of sulphur than as described by Goodyear's patent of May 6, 1851, among which were those to John B. Newbrough and Edward Fagan, dated March, 1868.

That in that month a suit was instituted in Pennsylvania, against Sill & Gillespie, dentists, by these complainants, in the U. S. Circuit Court, for an in- 7
fringement on the manufacture of dental plates of the compound described in the Newbrough and Fagan patents, and Justice McCandless granted a preliminary injunction for such use.

That defendant, having knowledge of these facts, has without license manufactured and sold, and still manufactures and sells dental plates, embracing the improvements and invention described in the Cummings patent.

And prays for an injunction and an accounting.

The defendant Gardner, by his Answer,— 8

First.—Admits the issue of the Letters Patent to Cummings, but denies that Cummings is the original or first inventor of the alleged improvement, or that it has not been in public use and sale for over two years before his application for a patent, or that he made application therefor in due form of law.

9 *Second.*—Does not know whether the Letters Patent were assigned to the Dental Vulcanite Company, or that they were duly organized under the laws of Massachusetts.

Third.—Admits the surrender and reissues of the Letters Patent, but denies that they were made legally or in due form of law; denies that the original patent was surrendered, or the reissue of the patent issued for any cause for which it could be legally done; avers that if it was so defective or insufficient as to be inoperative or invalid, it was not because of
10 inadvertence, accident or mistake, or without fraudulent intent on the part of Cummings, and that the reissues were not for the same invention for which the original Letters Patent were issued.

Fourth.—He does not know whether the Dental Vulcanite Company assigned the Letters Patent to Josiah Bacon, and he to the complainants; and if it was so, it was so done because the Dental Vulcanite Company was not a corporation, and had no power to hold the said Letters Patent or to assign them; and denies that the complainants are the owners of the Letters Patent.

11 *Fifth.*—Denies that the complainants or their assigns are or have been in the exclusive right and liberty thereby granted, or in the exclusive possession of the said invention or improvement; and avers that if many dentists have taken out licenses it was on account of threats and false representations of complainants' agents, and to avoid trouble and annoyance, and without intention to admit the validity of the patents, and under strong protests against the claims and pretensions asserted under the same.

Sixth.—Admits that the Wetherbee suit was commenced and the decree obtained as alleged, but al-

leges that the decree was not obtained upon correct 12
conclusions of either law or fact, and denies that it was conclusive in any respect as to the validity of the Cummings patent, and alleges that this answer sets up defenses not set up in the Wetherbee case.

Seventh.—Admits the fact of issue of Letters Patent to Newbrough and Fagan, and to others, and that in some cases injunctions were granted restraining them from using rubber under such patents, but that in none of such cases were substantial defenses touching the merits interposed, and the injunctions so obtained were not founded on correct conclusions of law or fact.

Eighth.—Alleges that long before the original pa- 13
tent of Cummings was issued or applied for, and before he had filed any *caveat*, dental plates were made by dentists by hardening it by baking, the same process as that described in Cummings' patent, except that metal was used, and it was not required to harden it by baking; and that long prior to said Cummings' patent it was well known to dentists and other persons that India rubber and sulphur, when mixed in certain proportions, could be compressed in a plastic state into moulds, and hardened by heating it in such moulds; and that neither the original patent of 14
Cummings nor his reissues taught anything new; and that said original and reissued patents embraced nothing but the application of a material not invented by him to the manufacture of an old and well known article; and that such application, even if it were new, would not be the subject of valid Letters Patent; and that even if the application of vulcanite to the making of artificial plates could be the subject of Letters Patent, Cummings was not the original inventor thereof, or or of any improvement described in this patent or the reissues thereof, and that the same was well known to and practised

by many persons therein named; and that it was also described in many foreign patents and journals published in Europe and America, which are therein recited.

Ninth.—That the said alleged invention had been in public use and on sale with the knowledge and consent of Cummings, more than two years prior to his application for Letters Patent.

Tenth.—That the issue of Letters Patent was void, by reason of the abandonment of Cummings and for want of authority by the Commissioner of Patents, to issue the original patent of June 7th, 1864, because the original application was made May, 1855, and rejected February, 1856, for want of novelty, and no steps were taken to appeal from such decision. That in 1859, he attempted to withdraw his application from the Patent Office and did nothing thereafter until 1864, when he filed a new application and specification, and on this new application the patent was issued to him in 1864.

That long prior to 1864, the use of hard rubber in dentistry, for making artificial plates for teeth, had become generally known and practised in the United States, and whether this was considered a new application or one in aid of the first application of 1855, the Commissioner had no authority to grant it, and the same was in violation of the Statutes in such cases made and provided, and in derogation of the rights of the public, by reason of the omission of Cummings, for eight years, to take any appeal or other action in regard to said rejection.

Eleventh.—That if Cummings ever made said invention, and if it was the subject of lawful Letters Patent, it was actually abandoned prior to March, 1864.

Twelfth.—That defendant admits that he made plates of hard rubber, but denies that they were made by a process, the exclusive right to use which is vested in the complainants, under the Cummings' patent, unless the patent is good for a plate made of rubber by any process in lieu of gold, silver or platinum previously in use, which defendant denies.

Thirteenth.—That the plates defendant did make, were made under a license granted by Newbrough & Fagan, and the material is not the Goodyear rubber, or Vulcanite, but Iodized rubber, or rubber hardened with iodine and not by sulphur as described in the Goodyear patent of May 6th, 1851, and is an entirely different article from that therein described, and requires an entirely different process or mode for converting it into a hardened mass, from that described in the Cummings patent.

Lastly—denies that complainant is entitled to any relief.

This cause was heard by stipulation upon all the proofs taken in the case of The Dental Vulcanite Company *vs.* Isaac V. Wetherbee, tried in Boston, in 1866; the case of The Goodyear Dental Vulcanite Company *vs.* John B. Newbrough, in New York, in 1869 and 1870; and the same *vs.* same, suit No. 2. The facts of the defense being the same in those cases and the present, and defendant Gardner being a licensee under said Newbrough.

The complainants sue as holders by assignment of Letters Patent, issued by John A. Cummings, June 7th, 1864, for the use of hard rubber or vulcanite as

21 a basis for plates for artificial teeth, and in the present, and all the above cases, defendants denied the validity of the above patent, or of its reissue, and presented in the answers substantially the defenses now presented.

The facts, as shown in these cases, are: That John A. Cummings was a dentist, practising in Boston; that in March, 1852, he filed a *caveat*, whereby he claimed that he had invented a new and useful improvement in the setting of artificial teeth, and was desirous of further time to make experiments to mature his invention previous to his applying for Letters Patent.

See Caveat, page 58.

22 From this time until in the early part of 1855, he employed one William A Bevin in making experiments by which to ascertain how to make plates, and in April, 1855, he applied for Letters Patent, and accompanied his application with a specification. In this specification he assumed that the process was well known, and described no way or method by which his invention could be practised.

His application was rejected for want of novelty, and he appealed when the Board of Examiners again rejected it, and this decision was confirmed by the Commissioner of Patents in February, 1856.

See page 76.

23 The reasons for the rejection were fully given, and his attention was called to journals in the United States and Europe wherein his claimed invention was fully described.

Pages 68, 71, 75, 76.

He suffered his application to lie dormant until 1859, when he applied to have his specifications and

drawings returned to him, which was refused, as being in violation of the customs and practice of the office, his case having gone before the Board on appeal.

See page 75.

Nothing more was done by him until in 1864, when a new application was made, and a Patent granted to him, June 7th, 1864 (Record, page 83), which was surrendered, and a new issue granted him in January, 1865, which was again surrendered, and a second reissue granted in March, 1865, to his assigns, the Dental Vulcanite Company.

All John A. Cummings ever claimed to have discovered or invented was that artificial teeth might be placed upon *a plate and gums* made of hard rubber or vulcanite, and his sole idea was to patent this application.

His *caveat* described no process; his application and specifications in 1855, and his patent in 1864, described no process by which plates of vulcanite for artificial teeth could be made, and none was disclosed until the reissues were made in 1865. He had then assigned his Letters Patent to the Dental Vulcanite Company, and the process then, for the first time, described, was theirs and not his, and was issued after a defense setting up the defects in the original patent had been interposed in the Wetherbee case.

A short account of Cummings' proceedings will show the Court what his claims to be original inventor, of the application of vulcanite for making plates for artificial teeth, are.

In his original *caveat*, in 1852, he does not claim or suggest anything more than that he has discovered that hard rubber or vulcanite can be used as a basis

27 for *plates and gums* to insert artificial teeth upon, and that he wished time to experiment and develope the same, accordingly. After this the evidence shows that he was connected with one William A. Bevin, who also claims that *he* had invented a process by which he could accomplish this same result. Cummings hired him; he was to experiment *in New Haven;* Cummings, who lived in Boston, was to pay him all his expenses, and if he succeeded in discovering a *process* by which a plate could be made, he was to furnish it to Cummings, who was to patent it, and they were to share the profits between them.

See Agreement, Record, page 344.

28 Long prior to this agreement, however, Bevin had been experimenting, and, as appears from all the testimony, unsuccessfully. Finally, he obtained a few plates of hard rubber with artificial teeth attached from a fellow-workman, Robert Haering,

See Testimony of Haering, page 141,
" Adolphus G. Haering, page 154,
" George W. Homan, page 165,

and a few plates from Dr. Stephen Mallett.

See his Testimony, and the Letters of Bevin to Cummings.

29 With these plates he made an application to the Patent Office for a patent, in April, 1855.

See Claim and Specification, page 66.

It was refused May 19, 1855.

Page 61.

He amended his specificatin and renewed his application.

Page 61 and 64.

It was again rejected, August, 1855. 30

Pages 68 and 69.

He appealed to a Commission.

Page 73.

And it was finally rejected, February 6, 1856.

Nothing further was done by him to obtain a patent until 1864, more than to make an attempt in 1859 to withdraw his application from the office, which was refused him, as in violation of the rules of the office.

Record, page 77.

All these acts show that he intended to abandon it.

I.

The evidence fully shows that he uniformly in- 31
formed his friends that he had attempted to patent the use or application of hard rubber for dental plates and had failed to accomplish any result and that he had given up the whole thing.

The deposition of Miller shows this (page 269 of the Record, Interrogatory 16). He states that Cummings told him, between the years 1855, 1856, and 1857, that he had used hard rubber as a basis for artificial teeth, and had failed; that somebody else had got the start of him. This was told him in a social and professional interview; also on page 272, Cross-examination, Question 8, he says that he admitted to him that he had used it and failed; that somebody

32 else had got the start of him, and he further says that during these years he saw Cummings several times, and the thing was frequently talked of.

The witness, Wetherbee, testifies, that as early as 1857 and 1858 the dentists in Boston were in the habit of making plates and mounting teeth on hard rubber, and Cummings knew it as early as 1858, and knew that his method was the same as practised by Boston dentists (see page 261). Cummings at that time informed him, that he and Bevin were the first to experiment, and he, Cummings, had applied for a patent.

Page 263.

33 Henry B. Goodyear testifies, that in the spring of 1856 he saw Cummings, and had some conversation with him about hard rubber plates for teeth. He says: "I was told by Bevin that he had been to "Boston experimenting with Cummings, and he "had become embarrassed by the operation, and he "wished me to loan him money, which I did. It "was shortly after this that I called upon Cum- "mings; my object was to induce him to take an "interest in the matter and help develop it. I got "no satisfaction from Mr. Cummings, and got the "impression from what he said that he had no confi- "dence in it."

Pages 350 and 351.

34 He adds, "that he don't think that Cummings "claimed to him, the witness, to be the inventor; he "cannot state positively, as he had but one inter- "view with him." He states that his object was to induce Cummings to take an interest in the matter and help develop it. He did not mean "to take an interest" in the sense of connecting himself with the enterprise, as he supposed he was already connected

with Bevin. Bevin did not say that he was experimenting at his expense, but that he had an understanding with Dr. Cummings to come to Boston and make experiments there at the expense of Dr. Cummings, and that Dr. Cummings did not carry out his agreement. 35

Pages 351 and 352.

It also appears from the letters from Bevin to Cummings, and from Cummings to Bevin, that Bevin was fearful that Cummings was about to abandon his application for a patent. These letters are written both while this application is pending and after its rejection.

In the letter of Bevin to Cummings, Nov. 12, 1855 (page 417, Exhibit 29), Bevin wants Dr. Cummings to say whether he will patent or not; he writes: "I must have funds to carry out the experiments, or "we shall be down. We could have had two or "three hundred sets of teeth now being worn, had "we gone ahead at the first; so much for delays. "Will Dr. Cummings write me and say what he "will do, as I am in suspense, and must turn this to "some account?" Again, on the 21st of November, Bevin writes, pressing Cummings to do something in the matter. 36

In Nov., 1855 (Exhibit 25, page 417), Bevin writes to Cummings, calling his attention to a pamphlet written by Mallett, in which Mallett informs the dentists of the mode of making hard rubber, and describes it in great detail; this is one of the exhibits in this case. 37

Page 294.

In June, 1856, Cummings writes to Bevin (Exhibit 36, page 421), that he is quite surprised to receive a bill against him. He supposed it all settled as he went along. "It makes it hard for me, as I have

38 "had to pay all the cash, both for myself, yourself "and Cook, and have not received one dollar in re- "turn, neither have I been able to obtain a patent, "which has also involved me in considerable ex- "pense."

In April 24th, 1856, (Exhibit 35), Bevin writes, that he is disappointed in not hearing from Cummings, and wants him to decide soon whether he is willing to aid, as there are other parties willing to enter into the case. Again (Exhibit 27 and Exhibit 32), Bevin wants to know whether or not Cummings is going to do anything, and states that Goodyear is about to have an india rubber business started in Boston, and wishes to be informed at an early date.

39 It appears that as early as July, 1856, Bevin, the partner of Cummings in this application for a patent, was so thoroughly convinced that Cummings had abandoned his claims, that he made an agreement with Charles Goodyear, (July 5, 1856), wherein he recited that he, Bevin, has made valuable services in perfecting the dental use of hard rubber for plates and teeth, and that he is to receive one-fourth of the profits in the business and Goodyear, three-fourths, and Bevin is made the agent of the concern to sell licenses to dentists.

40 Under this agreement he proceeded to sell the licenses to dentists in New England and New York, from 1866, to the time of his death.

Testimony of Miller, p. 270.
" Goodyear, p. 351.
" Bartlett, p. 281.
" Lawrence, p. 288.
" Keep, p. 255.
" Leach, p. 264.
" Wetherbee, p. 262.
" Cutler, p. 243.
" Ball, p. 232.
" Salmon, p. 250.
" Leavitt, p. 276.
" Bevins, p. 314.

After his death the Bevin interest were assigned to 41
William A. Bevin, March 8, 1859, (Add. Ev., p. —,)
and by him on the 23d of March, 1859, to the American Hard Rubber Company (Add. Ev., p.—) for the sum of four thousand dollars.

While Bevins was selling licenses to New England dentists, in the form given at page 291, he sold one to Dr. Cummings, the patentee himself (page 317, interrogatory 27). This he did in the Spring of 1862. Among other licenses sold by Bevin, one is found on page 291, sold in February, 1857. It was at this time that Cummings and Bevin were in partnership, by which it was 42
agreed that each should have a joint interest in the invention (see contract, page 344), and yet it appears that so completely had they abandoned any idea of obtaining their Letters Patent, that each was acting under licenses issued by the American Hard Rubber Company.

Pages 291, 228, 249, 263-4.

How entirely he had abandoned any idea of obtaining a patent appears from his conversations had with his brother dentists at this time. Thus the deposition of Ambrose Lawrence, page 289, shows 43
that in about 1856, Dr. Cummings had abandoned his claim. He says, "Dr. Cummings inquired of me why I did't go into the hard rubber work." My reply was, "Why don't you?" The purport of his answer was, that he would wait awhile. He gave me to understand that he was a little afraid of it, or its merits. At that time he drew the inference from the conversation between Cummings, Bevin, and himself, that Cummings did not make any claim to be inventor of the method of mounting artificial teeth upon hard rubber.

44 Dr. Leach (page 264) states that in the Spring of 1856, he was first introduced to Bevin in the office of Dr. Salmon, of Boston, who showed him cases of rubber that he had made. He said that he was determined to have some dentist connected with it who would carry it through; that he had tried it with one, and after going along for a little while he gave it up, and would have nothing more to do with it. This dentist was John A. Cummings. He said he was looking for somebody who did a great deal of busi-
45 ness, and a friend of his told him that Cummings did a great deal of business, and advised him to go to him. He was asked why he did not continue on with Cummings, and he said he was a man of not much bottom, soon got discouraged, and said that he would have nothing more to do with him. He then wanted me to render him some assistance, and if I would do so he offered to give me a license to use it.

Dr. Dennis T. Bartlett (page 282) states that he was acquainted with Cummings, and that in a conversation with Bevin, he said that Cummings said he would
46 have nothing more to do with it, that it was a failure, and that he had lost money enough in it. He states that he was well acquainted with Cummings; that Cummings knew that he was in the business of using hard rubber, and never objected to his using it until 1864, when he received a call from the agent of the Dental Vulcanite Company, formed by Cummings and others, and that agent offered him a present of stock if he would not oppose the Letters patent (page 282).

47 It further would appear that Cummings, as early as 1860, had sold to his partner whatever interest he might have in his invention (see interrogatory 49, of Flagg, page 367; also, interrogatories 56 and 57, page 368), and that he paid him for it three thousand dollars, more or less; so that all interest which he might have had became Flagg's.

II.

No evidence was given that Cummings had invented any *process* by which he could accomplish his end ; nothing appears in his *caveat*, or in his specification and claim ; but between the time of his application and the final patent a process became well known to the dentists, and was in general use throughout the United States, as is abundantly shown in the testimony. 48

Dr. Willard Ball (page 231) interrogatories 10, 11, 12 and 16, shows that as early as 1857 he, Cummings, had not used it, while other dentists had used hard rubber for mounting teeth in the manner described ; he states that there were four dentists in the vicinity of Walpole, N. H., in the winter of 1867, who were using it under a patent from Bevin ; and that as early as the year 1857 he had mounted thirty-six sets of teeth with it. 49

Dr. Nathan C. Keep (page 234) states that he learned from dental journals, as early as 1853, of the fact of the use of this material, and among others he read a detailed method of how it might be done in the *American Journal of Dental Science* in 1856, and that as early as the time of these journals he saw sets of teeth which were made on rubber bases, and knows of their general introduction. He says he himself moulded them as early as June, 1850, but did not like the practice ; that it was known and practised, more or less extensively, among Boston dentists, since 1857 and 1858, but he could not say that it was established as a business. 50

Dr. Seth P. Miller states (page 269) that Cummings told him that he had used rubber as a basis for artificial teeth, and had failed ; that some one had got the start of him. These statements were made in 1855,

51 1856 and 1857. When shown a plate by Bevin in the early part of 1857, he was sceptical, on account of what Cummings had told him of his own failure, *and Cummings admitted* that he had tried, and failed.

Page 272.

Dr. Rosewell Cutler (page 242, interrogatory 6) says that he introduced the use of hard rubber plates in 1860, and has continued it ever since. He says that since 1860 there has been a great deal of improvement made in the process of using hard rubber as a base for artificial teeth. He says that he has
52 been acquainted with Cummings for fifteen years—lived in the same city with him—and that, in his opinion, the knowledge of hard rubber as a basis for teeth was common among all the dentists of Boston since 1861.

Page 243, Interrogatory 18.

Dr. Ira A. Salmon says he commenced the use of hard rubber as a basis for teeth in October or November, 1856. He obtained his knowledge of it from Bevin, who at the time was wearing hard rubber dental plates made two and a half or three and a half years previous.

Pages 249, 250.

53 Isaac J. Wetherbee, dentist, states that in August, 1860, he saw teeth the plates of which were manufactured from hard rubber by Dr. Mallett; that, after that, he himself commenced the use of it for teeth; that he is acquainted with Cummings (page 259), and that Cummings told him he was the inventor and had applied for a patent. He asked why he did not obtain it if he was the *bona fide* inventor. Cummings' reply was, "I did not obtain any practical result." There was other conversation with reference to the very general use then being made of rubber. "The

reason why I asked him why he did not obtain Let- 54
ters Patent was that I did not believe him to be the inventor. I have met him frequently since that time at my office and elsewhere, and *he has never made any objections to its use by myself or others.*" He states that it had been in use in Boston by some dentists from seven to nine years, and in general use from four to six years, and during all that time *Cummings never asserted his claim or made any objection to its use.* Witness afterwards corrects his testimony (page 263) by saying that Cummings and Bevin were the first to experiment, and he (Cummings) had applied for a patent.

Elbridge G. Leach testified (page 263) that he had 55
used vulcanite as a basis for teeth since 1856; that he was acquainted with Bevin, who told him that he had tried to get Cummings to assist him in perfecting the process—that Cummings was not a man of much bottom. Bevin then wanted him to render him some assistance about the further going on with it, as to the thickness of the plates, &c., and if he would do so, offered to give him a license to use it. He did so, and used the rubber from July, 1856.

Dr. Dennis S. Bartlett says that he was instructed by Bevin, in 1856, in the mode of making plates for artificial teeth of hard rubber, and from that time 56
did continue the manufacturing of teeth to 1864 (pages 281 and 282). He says that he knew John A. Cummings, and that Bevin had stated to him that Cummings would have nothing more to do with it, as he had lost money enough in it.

Wm. P. Leavitt states that he was in the employ of Dr. Cummings from about 1850 (page 275), and remained with him about seven years, and that during all that time he never knew of Cummings making any plates of hard rubber; was present at one ex-

57 periment made by Bevin, which was a failure (page 275); thinks this was in the middle of 1863 (page 277). In interrogatory 9, he says, during the whole time that he was with Cummings he had the entire control of the mechanical department, and he never knew of any other experiment with hard rubber, and knows of no other experiments made by Cummings in the use of hard rubber for making sets of artificial teeth, or in the manufacture of plates as a base for artificial teeth.

58 Wm. A. Bevin says that he was in Dr. Salmon's office in 1857, 1858, and 1859; that in 1859 he made arrangements with the hard rubber company, whereby he took the control of the whole matter. They employed him as their agent in granting licenses under the Goodyear patent, to set up artificial teeth upon a hard rubber base (page 316). There were some six or seven dentists who used to send in sets along the first year he was in the business. After the first year it gradually increased, and he received sets from various New England States, and some from New York State.

59 That his father first began making experiments in the latter part of 1852; is not positive as to the year or amount of experimenting. His father had a set previous to going to Europe; that on his return from Europe in 1864 he and Cummings experimented a good deal together; these experiments were not made in witness' presence, except mixing the plaster, &c. He first saw *a set* in 1854 or 1855, given him for his father by *Haering* (p. 315). They were sent to Cummings by his father.

Henry B. Goodyear (page 348) testifies that he was acquainted with the use of hard rubber for dentistry, that be became acquainted with its use in 1854; that he had a set made for himself in 1556, and had worn them ever since; that his brother Charles

returned from Europe in 1858, and he had a set of 60
teeth on a rubber base at that time, which he wore and had worn for a long time previous; that in 1855 and in 1856, he was in the habit of seeing Mr. Bevin, who was in the habit of showing him his samples of teeth, and who wanted to make a set for him at that time. Bevin told him that he had been to Boston to make experiments there, and that he had made an arrangement that in case his experiments succeeded, he should have one quarter of the nett proceeds for the application. Bevin claimed (page 350) to be the inventor of the application, and to have one-quarter interest in it for its application to dentistry. After- 61
wards the Hard Rubber Company purchased his interest for $4,000. He further states, that in 1856 he called on Cummings, *who made no claim of being the inventor of the application of hard rubber to dentistry.*

From what Cummings said he got the impression that *Cummings had no confidence in it.* Goodyear was then attempting to induce Cummings to take an interest in it and help develop it, but he utterly failed to get Cummings to interest himself in the matter.

Dr. Wm. L. Macdonald (page 380) testifies that in 62
1862 he was employed as an assistant by Cummings; that Cummings got a Dr. Wendell to make an impression of his mouth in order that he might have the first set made in his office. At time (interrogatory 8) the witness did not know how to make plate work; never had seen any made, and told Cummings he had better get some one to give him instruction, and a gentleman whose name he had forgotten—who was going around giving instruction—made one set for him to instruct him. In interrogatory 12, he says, "Cummings himself did no work, or almost none in the office, and I had, as I have re-

63 marked, almost all the plate work to do, and I knew nothing about the rubber work. I told Dr. Cummings that if I attempted to do the work, I wanted to do it right, and have instructions to do it in the proper way. During all that time, Cummings gave me no instruction in the method or process of making plates of hard rubber for artificial teeth."

Dr. Jehial Parmly, a practising dentist for thirty-six years, states that he had used hard rubber for dental plates from as early as 1858 or 1859, and the process, as stated by him in interrogatory 4, is the same as that now used.

Dr. Henry A. Luther (page 125) states that he
64 first used hard rubber as a basis for teeth in 1856, and says that this was the first time that rubber was employed in dentistry in New York. In Interrogatory 6, he describe the mode, which is similar to that now used, and described in the reissue of Cummings' patent.

Jerome B. Wheat (page 128) states that he has been in the business over thirty years; that from 1850 to 1856, he was in New Haven; while there, Robert Haering called on him, saying that "Goodyear, before he left for Europe, stated, that if he wanted any assistance or information from any dentist, to call on me; that he wanted me to assist him in introducing this method of inserting teeth. I was
65 satisfied from what I knew of hard rubber, that teeth could be inserted in that manner, from the statements he made, and from the specimens shown to me. He told me that he wanted to get out a patent for it, and that if I would assist him in introducing it, he would assign to me one-half the patent. I proceeded under that, and made the application in March, 1856." He also states that he made sets of teeth in the Autumn of 1855.

Archibald McElroy (page 132) states that he had been engaged in dentistry for thirty years. He says

he cannot remember when he first learned of the application of hard rubber to dentistry; cannot separate the application of gutta-percha to dentistry, and the application of hard rubber. In 1845, one of the oldest dentists in England exhibited to him his mode of setting teeth in gutta-percha. He had also seen Dr. Lovejoy, of this city, do substantially the same thing; he had read and heard of this thing before seeing either of these gentlemen, first in an English newspaper. He could not state the precise time when the idea of vulcanite was first brought to his attention; but remembers distinctly, that it was urged upon the attention of the New York Dental Society, in 1855 or 1856. The idea was urged by Dr. Putnam, and we ridiculed him and the whole thing. He claimed to be a partner under the Goodyears for dentistry in its connection with hard rubber. Putnam, at that time, used the process precisely the same as now detailed in the Reissue of the Letters Patent of Cummings. (See Answers 4 and 5, page 133.) He says that somewhere between 1851 and 1855, a communication appeared in the New York Dental Review from Dr. Royce, describing his method of setting teeth, which was similar to the mode employed now for hard rubber, with the exception that they used, instead of a soft substance like soft rubber, a metal which was made in other respects exactly similar to the present mode. He also says that the cheoplastic process in somewhat similar.

66 67 68

Dr. George B. Miles (page 137) says that in the winter of 1855 and 1856 Dr. Putnam showed him teeth mounted on a piece of hard rubber, and that in the Spring of that year he went to work under Putnam in Bond Street, New York. The process he describes in Answer 4 was exactly that now used for hard rubber plates. In Answer 5 he says that the only difference was a slight difference in mixing the plaster; that was all. At that time they used soapstone, but do not use it any longer. In mounting

69

70 artificial teeth by the use of soapstone—cheoplastic proved to be the same, with the exception of not needing the heat—it hardened itself. He describes the process in detail.

See Answer 12, page 138.

III.

It is very plain that Cummings was always ignorant
71 of any *process* by which a dental plate or gums could be made of hard rubber. His employment of Bevin shows this. He was introduced to Bevin in the latter part of 1853 or beginning of 1854, by Bevins' brother-in-law, J. C. Hurd (page 377). At this time he had a filling for teeth of india rubber and wanted Cummings to introduce it.

Hurd wrote to Bevin that Cummings would interest himself in the rubber filling (letter Nov. 12, 1853), page 408, and again Dec. 9, 1853, page 209.

72 We next find from the correspondence of Cummings and Bevin. In March, 1854 (page 410,) Bevin speaks of tooth-filling and that the article is *soft* when *warm* and *hardens* when *cool*, and may be pressed in a mould and hardened. *This must have been gutta-percha.* Immediately after writing this letter he went to Europe with Goodyear, and remained there until in the following September (page 313). On his return, and in October, 1854, Cummings writes to Bevin to experiment *upon covering* the in-
73 side of a gold or silver plate with rubber (page 411.) And in the same month Hurd writes to Bevin for Cummings, asking him to *make some* experiments, and to perfect some scheme they have talked over (p. 411). In November 27, 1854, Cummings writes he is anxious to *perfect something in the way of making and filling teeth.*

Bevin replies, December 2d, 1854, saying he will

experiment, if desired, and adds, "*The filling is the* 74
main object with me" (p. 326).

In January 31, 1855, he again writes that he is ready and that Cummings can send him a set of teeth to correspond with the rubber ones. They can be placed on the rubber *plates and wired, so as to be strong. They* have a process to put on *gold now without copper* in New York (page 412).

The letter of Cummings to Bevin, February, 1855, (page 413), and answer of Bevin, February, 1855 (p. 327,) show that he was experimenting in something. The next letter is after the filing of his application in 75
April; the Bill of Bevin against Cummings (V. No. 1), p. 325, shows that from January, 1854, to April, 1855, Bevin *was not* experimenting for Cummings *on hard rubber plates for teeth*, but in covering *metal plates* with rubber and on fillings for teeth.

In April, 1855, *for the* first time, he commences his experiments, and he is not very successful. Cummings writes him, April 4, 1855 (p. 333), to send samples of red gum, and asks him if he can't *at once get samples of colors in the shape of gums*, they would do *if parts without teeth.*

Bevin answers April 20, 1855 (page 413), that he 76
has not been able to do much, that he has *made but one set, and that was not good.* He promises to try and have something to send to the Patent Office.

Cummings replies the same day and says he hopes he will get him another set to forward to Washington, that the first one is sent to Washington (p. 334). He writes again, April 28, 1855 (p. 334), that he wishes Bevin *to get a good set colored to send to Washington.*

This is in answer to a letter of Bevin, of April 28, 77
1855, in which he says, "I send you by express, *this set of teeth, it is the only one that is good, and this is poor enough.*" * He says, "I have to have advise *as well as work* from Dr. Mallett (p. 327).

In a letter of May, 1855, Bevin writes, (p. 328,) "we have tried on gum teeth and have got out a few

78 sets, but *they are not good or worth sending.* I have tried to do the best under the present circumstances, as the *German is against me*, he is trying on teeth too. * * I have no more of that red gum, by the way, gum teeth will be the first and red rubber gum afterwards."

June 8, 1855, (p. 333) he writes, "I am not connected with the German, who used to trouble me so much about my work. *This set is of my manufactory.*"

79 June 19, 1855, Cummings, writes that he likes the plate and desires to have it electro-plated.

Page 335.

June 22, (p. 414) Bevin writes that if Cummings does not furnish funds, he would stop and find *some one* who will carry out the business.

July 11, 1855, Bevin writes, (p. 329) "the *two poor sets* I send you, have moulded over say two or three sets for each plate, and mark them with the improvement, I spent of above.

80 July 14, 1855, Cummings (p. 336) writes, "I want you to send me two or three sets of the color and I also wish you to send enclosed samples to New York, for electro-plating," &c.

July 21, 1855, Bevin writes, (p. 415) that he will have the electro-plating done, and says that Goodyear, has in France, had a set of hard rubber plates made which he is using.

July 21, 1855, Cummings writes him to make an affidavit or certificate, that he has been wearing india rubber plates for some *eight weeks.*

Page 336.

Bevin makes this certificate, and *on oath*, only 81
claims July, 1855, that he has worn a set for *three* months. He states he has worn *metallic plates* for three years.

Page 62.

About the same time (July 28, 1855,) he writes, (p. 416) that he sends Cummings two sets of teeth, and promises more, and suggests electro-plate.

He writes, August 23, 1865, (p. 330) that he cannot succeed in the electro-plating, that he fears the invention cannot be patented, &c.

Cummings replies August 27, 1855, (p. 337) that he 82
expects to get a patent, and would like to *have a few sets made for testing.*

On the 25 August, 1855, he again writes he wants an affidavit for Patent Office, (p. 337.) This affidavit was made August 30, 1855.

Page 70.

September 7, 1855, he writes, (p. 331) that he sends two sets of teeth. The large one a trial of the tooth *filling.* It has no sulphur in it.

October, 1855, (p. 416) he writes that Goodyear is 83
much interested in the business, *that he intends* to secure patents for this in Paris and England. Asks about the tooth filling, &c.

October 27, 1855, he writes (page 417), giving the method of making the plates, and tells Cummings how it is to be made.

November 12, 1855, he writes (page 417) that Cummings must say whether he is going to do anything or not, as he must himself turn it to account.

84 November 21, 1855, he writes (page 418) that he is forwarding samples of colored gutta-percha. He says: "We could make that stock, if it was wanted, at a low price, and it would not interfere with our business in that rubber, as *that will be short-lived.*"

Cummings writes, November 21, 1855 (page 338), to him to try the gutta-percha.

He replies, December 5, 1855 (page 419), that he has sent the compound, &c.

85 And again, December 20, 1855 (page 420), writes enquiring about it.

January 15, 1856 (page 420), he writes that Dr. Wheat is trying to take out a patent on rubber plates for dental purposes, and thinks he is associted with Haering, *the German he has before spoken of.*

April 24, 1856 (page 421), he writes that Cummings has done nothing, and *wishes him to decide soon, as there are other parties ready to take hold of it if he does not.*

86 June 19, 1855 (page 421), Cummings writes that he has just received a bill from Bevin (see bill V. I., page 325), states that he has failed to obtain a patent, and is deeply involved, and has not received a dollar. He thinks by going to New York the *thing* can be sold for a good deal of money.

Bevin writes, October 21, 1856 (page 422), that Goodyear was about to start this business in Boston, and he informs Cummings of it; asks him to inform him if he wishes to do anything in the business.

No further correspondence passed between them, and Bevin went into an arrangement with Goodyear. 87

Page , Ad. Ev.

From this whole correspondence it is very apparent that Cummings had no idea how to make a plate of vulcanite or attach teeth to it. He had conceived the idea that to use a vulcanite plate to mount teeth upon was practicable either himself or from reading about it in the English journals, or those of this country,

See Exhibit A, page 174,
" G, " 218,
" H, " 221,
" I " 222,
" K, " 223,
" L, " 224,

(all prior to his *caveat*,) or the journals referred to in the testimony of Dr. McIlroy (page 132), or more recently in the American Journal of Dental Science, 1853. 88

Page 297, and again page 294.

In fact the experiments of Bevin under Cummings show that he was following the description of the Truman patent (page 174), and afterwards the method of Saunders of coating metal plates with rubber.

See Saunder's process, p. 297.

Bevin's bill shows that he first only experimented in his *own* rubber filling for decayed teeth, which *could not have* been vulcanite as there is no way of hardening it without heat. Next he experimented in plating metal plates with rubber, and not until in *April*, 1855, did he attempt to make a plate of hard 89

90 rubber for artificial teeth; and for a long while after the application for a patent was pending he was attempting to *electrotype, still the Turman process.*

In fact Bevin stated in 1856 that all Cummings was attempting to patent was dental plates of *soft* rubber. That he and Cummings had tried soft rubber or gutta percha and failed; that this was not the hard rubber he was then selling.

Testimony of D. S. Bartlett, p. 284.

This was testimony drawn out by the complainants on cross-examination.

The ignorance of Cummings is most apparent from his *caveat* which discloses nothing patentable, and claims nothing by which the idea can be realized.

IV.

91 The application of April 12, 1855, is also defective, it describes no manner by which the object can be obtained. No skilled or well educated dentist could from the specification practise the alleged invention.

All the dentists testify to this.

See Testimony of Nathan C. Keep, p. 239.
" " Rosswell Cutler, p. 242.
" " Isaac Wetherbee, p. 258.

Artificial teeth on hard rubber plates were made by Dr. Evans in Paris as early as 1847 (p. 435), and he fully detailed his invention to Goodyear in 1851 at the close of the International Fair (p. 437), and Goodyear took out a patent for it in 1855.

In 1854, Bevin *was in Paris with* Goodyear *on* 92
this very subject (page 313). Unquestionably he then learned a *process* from Evans, who says he freely communicated it to Goodyear (page 438). Bevin then returned to this country, and entered into an agreement with Cummings, as above detailed.

That Cummings depended solely upon Bevin for experiments and his models appears clearly from his and Bevin's letters, and the testimony of William P. Leavitt (page 274, &c.), who was Cummings' clerk from 1849 to 1856, shows that Bevin did all that was done; and Bevin in 1852 was endeavoring to make them of gutta-percha, or soft rubber.

Testimony of D. S. Bartlett, page 279.

The practical sets Brown made for Cummings were 93
made by Stephen Mallett,

Testimony of J. W. Bartlett, page 284,
" S. Mallett, " 298,
" A. B. Smith, " 305,
" W. A. Bevin, " 312,

and by Robert Haering (see Brief V, page 34).

Bevin always claimed that he himself was the original inventor, and that Cummings merely furnished the necessary means to perfect the invention.

Testimony of Wm. C. DeForrest, page 354.
" Robert McGonegal, " 306.
" H. B. Goodyear, " 350.
" J. W. Bartlett, " 285.
" D. S. Bartlett, " 280.

It is evident, too, from the letters of Cummings above quoted, that he was not himself in possession of a single plate that he could use as his model in

94 the Patent Office, and that even when he obtained his Patent he did not know how to make a plate.

See evidence of Robert Haering, page 141.
" Adolphus G. Haering, " 162.
" George W. Homan, " 165.

Dr. Cummings, in March, 1864, made a new application to the Patent Office, stating no reason why he had not prosecuted his application in 1856 by appeal or otherwise, or why he had allowed his original application to lie dormant for over eight years.

Record, pages 78 to 82.

95 He was required to amend his specification so as to exclude gutta-percha (page 78), and the Letters Patent were issued to him June 7th, 1864 (page 83).

At this time Cummings had assigned one-fourth of his invention to G. H. P. Flagg and H. D. Osgood (page 40), and one-eighth to his lawyer, Joseph Gavett (page 42).

These parties, with one Josiah Bacon, incorporated themselves under the general manufacturing laws of Massachusetts, as a corporation, under the name of the Dental Vulcanite Company (pages 120 to 122), and assigned these Letters Patent to said corporation July 30, 1864 (page 42).

96 This company instituted a suit against Isaac J. Wetherbee for an alleged infringement of the patent, and the record is a part of the present record by stipulation, being pages 228 to 439, inclusive.

That suit was commenced October 25th, 1864 (see complaint, page 5), and defendant then set up

as a defense that the Letters Patent were void as dis- 97
closing no process or method by which the plates could be made, and that the claim, being merely for application of hard rubber for dental plates, was not the subject of Letters Patent.

While the suit was pending and undetermined John A. Cummings surrendered these Letters Patent on the tenth day of January, 1865, and obtained a reissue (see pages 32–36), which for the first time discloses what purports to be a *process* or method by which the plates may be formed, although the patent was then owned by the Dental Vulcanite Company. The reissue was granted to John A. Cummings.

On the 22d day of March, 1865, Cummings again 98
surrendered this reissue, and a second reissue was granted to said Dental Vulcanite Company, who now claimed to own the same under this reissue (see second reissue, pp. 36 to 40).

The defendant insists that the Dental Vulcanite Company were incorporated under the general manufacturing act of the State of Massachusetts, and as such could not hold patents for the purpose of selling or inducing the sale of licenses for manufacturing purposes; that their powers are limited to man 99
ufacturing, and that only; and that as such they cannot hold these patents for the purpose of such suit.

On the 17th day of July, 1866, the Dental Vulcanite Company assigned their patents to Josiah Bacon, in consideration of $500, and he assigned them, on the 7th day of January, 1868, to the Goodyear Dental Vulcanite Company, a corporation organized under

100 the General Manufacturing Act of the State of New York, and the complainants in this suit.

See pages 44 and 46.

Cummings, when the Wetherbee case was being tried, declined to be examined, the reasons given being that he was weak, his mind feeble, &c., and various other frivolous excuses for his non-appearance.

See Testimony of Dr. Walker, page 423, and Dr. Thayer page 426; this testimony was given in 1865.

He was well enough to go to Europe; returned in improved health; became sick afterwards, but was and is well enough to be out of bed and go about his farm every day. To excuse his absence on the trial of the
101 Newbrough case, his wife was called (p. 449) in 1870. She proves that there is nothing in his *physical* condition to prevent his being examined, and she could not be a competent witness as to his mental state: the most she ventures to assert is, "I don't like to say it and I don't think he would like to have me say it, but at times I think he is not right." The only thing Dr. Cummings is unable to do, it would appear, is to stand a cross-examination.

V.

102 In 1850, and before Cummings claims to have made his discovery or invention, one Robert Haering then experimenting for Goodyear, in New Haven, originated the idea of making plates of hard rubber for artificial teeth, and first made one for his sister,

Maria Schweitzer, but it did not fit and he made a 103
second set.

Testimony of Maria Schweitzer, page 134.
" " Robert Haering, " 144.
" " Adolphus G. Haering, 156.
" " George W. Homan, " 164.

That then he made sets for his sister-in-law, Caroline Haering, and then a number for Frederick A. Bevin.

Testimony of Maria Schweitzer, pages 135-6.
" " Robert Haering, " 140, 142, 147.
" " Adolphus G. Haering, " 154, 162.
" " George W. Homan, " 165, 167.
" " Caroline Haering, " 170, 171.

All this evidence is uncontradicted, and shows that prior to the filing of a *caveat* by Cummings, Haering 104
had reduced his application to a practical result. He applied for a patent at the same time Cummings did, and his application was rejected for the same reasons as Cummings.

See Proceedings in the Patent Office, pages 94 to 112.

He details a *process* and yet fails to secure a patent, but after Cummings has succeeded, he renews his applicalion, and obtains a patent also, in January, 1869.

See page 119.

The defendant and appellant is a licensee under this patent, and also under the patents of Newbrough and Fagan, for the use of iodized rubber.

See page 229, &c.

VI.

105 Long before any of these pretended inventions are claimed to have been made, hardened rubber and its equivalent, gutta-percha, had been used as a basis for dental plates.

A Dr. Berend, of Liverpool, England, as long ago as 1845, had used it in his practice and apparently very successfully.

Evidence of Dr. Mellroy, p. 132.

106 And Dr. John Lovejoy also practised the same thing in his profession, at the same time in New York City.

Same Evidence, page 132.

Dr. Evans made use of rubber for the same purpose in Paris, in 1848, for his patents; and in 1957 made a number of sets for Mr. Charles Goodyear, and he freely communicated his process to Charles Goodyear, Jr., prior to 1854, at which time he had with him Bevins.

See pages 311, 435 to 438.

107 As early as March, 1855, Goodyear took out patents in England and France for this precise invention.

Pages 438 and 356.

In August, 1848, Dr. Edwin Thomas Truman obtained a patent in England, for hard gutta-percha plates for teeth (see patent, page 174), in which he fully describes both the application of the material and the *process* of the application.

In August, 1851, M. De La Barre read before the 108
Academy of Sciences of France, a memorial upon the employment of hardened gutta-percha in the formation of artificial teeth.

See Exhibit G, page 219.

At the World's Fair at London, in the summer of 1851, Dr. Truman exhibited mineral teeth mounted in hardened in gutta-percha *hardened by sulphur.*

See Exhibit H, page 221.

At the same time the jurors of this Fair, show that 109
the compound was substantially hard rubber or gutta-percha compounded as the Goodyear rubber is, *with sulphur*, and the plates were similar to the present ones.

See Report of Jurors, Exhibit I, page 222.

In the January, 1852, number of the American Journal of Dental Science (page 332), it is announced that a Dr. Parsons of York, England, has obtained 110
a patent for fixing artificial teeth upon a preparation of gutta-percha, and that his brother, a Dr. Parsons of Halifax, with others, has done the same thing in Liverpool; and states that six or eight months previously, a gentleman in New England, had done the same thing and expected to make the discovery known to the profession.

See Exhibit K, page 223.

Dr. Mallet used it in 1853 and 1854.

See his testimony, page 228.

111 It was also introduced in New York, generally, in 1855, before the New York Dental Society in 1855 and 1856, by Dr. Putnam.

He then had developed a *process* and made dental plates by it.

Testimony of Dr. McIlroy, page 133.
See also Dr. Ball, page 228.
In 1853, Dr. Keep, page 234.

POINTS.

FIRST.—The alleged invention of John A. Cummings, was not new nor patentable.

The invention was *solely* a new application of material, without regard to the *method* or *process* of application, and the patent as issued is merely for vulcanite or hard rubber, as compounded under the patent and specifications of Nelson Goodyear, of May 6, 1851, for forming *a plate and gums* of this substance, in which artificial porcelain teeth are to be inserted, and nothing more.

The *caveat* filed in May, 1862, described the invention as follows :

"A serious objection has hitherto been experienced in fitting sets of artificial teeth, "arising from the hard, unyielding nature of "plate by which they were held in the mouth, "as this plate not only hurt the mouth, but im- "peded in some degree both mastication and "perfect articulation. The expensive material "also of which the plate has been composed has "prevented many persons from availing themselves of the advantages of artificial teeth. My "improvements, by which these objections are "obviated, consist forming *the plate and also* "*the gums in which the teeth are inserted*, of "rubber or some other elastic substance, so "compounded with sulphur, lead, and other "similar substances, as to form a hard gum, or "Whalebone Gum, which is rigid enough for "the purposes of mastication, and pliable "enough to yield a little to the mouth. *By this* "*improvement the teeth can be easily baked into* "*the gums, which form one piece with the* "*plate.*

"The plate, by its elastic and yielding proper-
"ties, will adapt itself more readily and accu-
"rately to the inequalities of the mouth, and
"thereby be held firmly in the same, and at the
"same time yield a llttle to the motions of the
"mouth in mastication or articulation, thus
"effecting a desideratum which has long been
"considered of great importance."

The specifications for a patent in his application in April, 1855, still present no *method* or *process* by which artificial teeth can be attached to the *plate and gums*. His original application was for an "indurated" material which he amended by substituting a "vulcanized material." The claim was for "an improvement in "the manufacture of sets of mineral or other "artificial teeth, which consists in combining "them with *a rubber plate and gums* which are "vulcanized by Goodyear's process."

Record, page 65.

The caveat furnishes no evidence of Cummings having discovered anything, if you except *the application* of hard rubber to the manufacture of dental plates.

And the patent in 1834 is issued substantially as therein described (page 29), and the claim is:

"What I claim as my invention, and desire to
"have secured to me by Letters Patent, is form-
"ing *the plate and gum in which the teeth are*
"*inserted in one piece of hard rubber* or vul-
"canite—*i. e.*, an elastic material which can be
"hardened sufficiently for the purpose of masti-
"fication, and retain a portion of its elasticity so
"as to yield a little to the motion of the mouth,
"as herein set forth, and for the purposes de-
"scribed."

So that all Dr. Cummings claimed, and all which was patented, was *the application* and use of hard rubber or vulcanite vulcanized, as described in the patent of Nelson Goodyear of May 6, 1851, to the construction of a *plate and gums*, to which teeth may be attached, without regard to the *method* of attaching the teeth, or the process of forming the plate.

The patent, therefore, was not for a new art, a new machine, a new manufacture, or a new composition of matter, and as such does not come under the provisions of the patent laws.

The inventor must before receiving his patent, deliver to the Patent Office a written description of his invention or discovery, and of the manner and process of making, constructing, using and compounding the same; he must further specify "the part, improvement, or combination, which "he *claims* as his own invention or discovery."

See Act of 1836, Section 6.

And his claim or "summing up" is conclusive and binding upon him.

Wyeth vs. Stone,	1 Story, 285.
Many vs. Jagger,	1 Blatch., 378.
Moody vs. Fiske,	2 Mason, 118.
Hovey vs. Stevens,	3 Wood & M., 23.
Parker vs. Sears,	1 Fish, 99.
Am. Pin Co. vs. Oakville Pin Co.,	3 Blatch., 193.
Brooks vs. Fiske,	15 How., 215.
Winans vs. Denmead,	" " 341.
Johnson vs. Root,	1 Fish, 351.
Rich vs. Lippincott,	2 " 4.
Pitts vs. Wemple,	" " 13.

He cannot now describe the application of a new material to an old use by a process old or new; and claim whatever may be ascertained to be new, whether it be the application of the material or the process, or a part of the process by

which the application can be effectually and usefully made. He *must* specify *what* he claims as new, and when he has done so, the claim limits and defines his monopoly; and if his right to what is claimed is overthrown, he cannot sustain his patent by reference to something appear ing in his specification not covered by his claim.

Here his claim is merely for the application of a material; such was the understanding of the Patent Office in 1864, and of these very complainants. That the *application* and not the *process* was what was intended to be patented, is apparent from an inspection of the original patent, and the claims of each reissue; and such was the claim of the plaintiffs when they instituted this very suit. In the Bill of Complaint they demand a discovery of "2d," the quantity of gum or rubber prepared *to be* manufactured into plates or gums made wholly or partly of hard rubber or vulcanite.

See Complaint, page 9.

It makes no difference what the process or method by which they shall make dental plates of hard rubber, if *they are made*, the Goodyear Dental Vulcanite Company claim it infringes upon their rights; and if it is shown that this is unpatentable, the patent cannot be sustained, because the descriptive portion of the patent discloses a process which might have, if new, been patentable.

SECOND.—The patentee in the present case proposes to use plates and gums composed of vulcanite, *compounded and vulcanized as directed by the patents of Goodyear*, and of course subject to these patents, for artificial dentures. And the use for that purpose is all he claims to have in-

vented. It is obvious that the qualities possessed by this material, being known to all the world, the suggestion that it could be applied to this purpose could not be a discovery or invention within the meaning of the patent laws. It was, perhaps, a happy thought, but it was as perfect when it first occurred to the "inventor," as it ever did or could become. It was incapable of development or extension, and no labor, physical or mental, no expense or experiment could add to its value. No service was rendered the public, for which return could be asked; and the public should pay in the monopoly only for the beneficial exercise of the inventive faculty.

The invention as described and claimed, is the substitution of one material for another, in a manufacture not new, in which the process of application is not stated, or claimed to be novel.

Such a substitution is not patentable.

A mere discovery as such is not patentable, nor is an abstract *principle* or *idea*, nor the *result* of a certain process.

It is necessary, under the Patent Laws—1. To conceive an application, principle, form or law, and then devise some medium, mechanical contrivance or *process* by which it shall become practical and operative, and it is this medium, contrivance or process which would, in connection with the original conception, be the subject of Letters Patent.

Smith v. Downing,	1 Fish Ca.	68, and cases.
Ransom v. Mayor of N. Y.	1 "	262.
Wintermute v. Redington	1 "	247.
Rich v. Lippincott	2 "	7.
Morton v. Eye Infirmary	2 "	324.
Leroy v. Thatham	14 How	175.
O'Reilly v. Moore	15 "	112-118.

Hence the original patent to John A. Cummings June 7th, 1864, was unauthorized as being for an idea or principle which was not patentable under the Patent Laws.

THIRD:—The issue of Letters Patent to John A. Cummings, June 7th, 1864, were null and void, as improperly issued after final rejection. The original application of Cummings for a patent was made April 12, 1855: it was finally rejected by the Commissioner, Feb'y 5, 1856, and no appeal was taken from that rejection. Eight years afterwards, March 25, 1864, Cummings made a new application, and the original patent was issued June 7, 1864.

His application in March, 1864, page 78, does not claim that the same had not been used and known by others long prior to the application. In fact, it had come into public use from 1854. See testimony of dentists throughout the United States, pages 263, 272, 261, 350, 353, 417, 421, 315, 316, 291, 289, 204, 282, &c. *And with his knowledge and consent.*

See p. 263, 272, and testimony in the Wetherbee record. above quoted.

This was a *legal* abandonment.

(*a.*) The statute of 1861, sec. 12, requires all applications for patents to be completed and prepared for examination within two years from filing the petition, and in default thereof they shall be deemed abandoned, unless it is shown to the satisfaction of the Commissioner that such delay is unavoida-

ble. It this then was a renewal of the application of 1855, it was void for the last cause. Did Cummings prepare and complete for examination his application within two years from March 2d, 1861, the date of the act? The act provides that all applications pending shall be deemed filed at the date of the act. Cummings did nothing; he suffered his application to sleep for these years, and in March, 1864, made a new application. He made no claim that the delay was the fault of the Patent Office; offered no excuse for his own long delay, or claim that it was *unavoidable*. See records of Patent Office (p. 78 to 93.) As no evidence was offered to the Commissioner to enable him to act, his action was wholly unauthorized and void, there being nothing for him to base his *discretionary* powers upon, and the patent was illegally issued.

Ex parte Raymond, Mss. app. case, D. C. 1861.
Winans vs. Schen. & Troy R. R.. 2 Blatch, 291.
Ellithorpe vs. Robertson, Mss. app. case, D. C., 1858.
Ellithorpe, vs. Robertson, 2 Fish. 83.

If the application was made by Cummings in 1856, and rejected, and he then abandoned or failed to press it, and it went into public use, the patent afterwards issued is void

Rich vs. Lippincott, 2 Fish, 9.
Goodyear & Bacon vs. Hill 3 Fish. 134.

An application for a patent in the sense of the Patent Laws, is an entirety, and embraces all that should be done by the applicant; and a final rejection and a neglect to prosecute for more than two years, is an abandonment of the invention to the public.

See act of 1861, chap. 88, sec. 12,
Rules of Patent Office in force in 1854, secs. 47, 38 39, and 105, and Patent Reports 1851, pp. 498, 502.
Godfrey vs. Eames, 1 Wall, 317.

The applicant can make as many applications as he pleases, but the *final* application to succeed under the Patent laws, must be made within two years of the time the invention went into public use.

(*b.*) Cummings acquiesced in the final decision of the Commissioner in 1856. The subsequent and general use of the article claimed by Cummings, must be held to be an abandonment *in fact* by him of his invention, even if his claim to be the original and first inventor, were not disputed.

Kendall vs. Winsor, 21 Howard, 329.
Pennock vs. Dialogue, 2d Peters, 16.
Shaw vs. Cooper, 7th Petere, 320.
See also, Ransom vs. The Mayor, 1st Fish 272.

It will be seen from the record, that Cummings after the rejection of his application in 1856, did abandon his alleged invention, and forever gave up the idea of obtaining a patent for it.

See this Brief I, pages 11 to 16.

Giving up his invention, doing nothing towards getting a patent for eight years, informing all his brother dentists that he had abandoned it, telling them he had tried and failed, knowing, that they were using the invention, and never objecting to such use, suffering it to come into general use; and the profession, by their experiments having discovered a practical method to work it, after his failure to obtain a patent; and his destruc-

tion of all his plates in 1856, all these facts show his intention to abandoned his invention.

Ransom vs. Mayor of New York,	1 Fish	272.
Bell vs. Daniels,	1 "	378.
Johnson vs. Root,	2 "	281.
Sayles vs. C. and N. W. R. R.,	2 "	526.
Pennock vs. Dialogue,	2 Peter	16.
Kendall vs. Winsor,	21 How.	329.
Whittemore vs. Cutter,	1 Gall.	432.
Thompson vs. Haight,	1 U. S. Law, J.	575.
Shaw vs. Cooper,	7 Peters,	320.
Pitts vs. Hall,	2 "	235.
Wyeth vs. Stone,	1 Story,	283.
Goodyear vs. Hill,	2 Fish,	134.

Bevin v East Hampton Bell Co Mss
U.S. Circuit Court. Conn pr Shipman J.

In this connection it is proper to direct attention to the fact that although Cummings was the most important witness the complainants could possibly have, that he was alive and within the jurisdiction of the Court, during all the time this litigation was pending; that he was largely interested in the result, owning five-eighths of the company's stock, *he never was produced as a witness;* the flimsiest possible excuses were offered for his non production, and a careful examination of the testimony in explanation, compels the conclusion that the complainants deliberately withheld him, because he could not undergo cross-examination.

See testimony of Walker, p. 423.
" Thayer, 426.
" Bacon, 406.
" Flagg, 370.
" Mrs. Cummings, 449, 453.

FOURTH.—The reissues of January, 1865, and March, 1865 were void as illegally issued.

(*a*). The patent of June 7th, 1864, was assigned by John A. Cummings and others to

the Dental Vulcanite Company, and the assignment filed in the Patent Office August 5th, 1864 (page 43).

Then January 10th, 1855, Cummings, *no longer* the owner of the patent, surrendered it, and the first reissue was made to him (page 32).

This surrender and the reissues were irregular and contrary to law both on the part of Cummings and the Patent Office, because the reissue was to Cummings and not to the owners of the patent. He had nothing to surrender.

See page 82 to 94 and 433.
Porter vs. Holland, 1 Fish 35e.
Commissioner of Patents vs. Whiteley, 4 Wall 522

Whether the assignee afterwards approved it or not cannot affect the legality of the reissue. It was a void act and could not be made legal. If the act was void then the reissue was null.

(*b*). The reissues are also void because not for the same invention or discovery as that of the original patent of June 7, 1864. The original patent was, as was the original application in 1855, for an application of hard rubber or vulcanite as a basis for dental plates ; no process to accomplish this was claimed, none was given, and the patent itself disclosed none by which any one could make such plate, unless he had prior knowledge of some process apart from that disclosed by the patent. No one could make plates from the specification in the patent.

(*a*) The specification, as well as the caveat, was for a *solid plate and gums, all of vulcanite*, in one piece, and not a plate of vulcanite with teeth or teeth *and gums* attached.

The reissues give a pretended process, and hence disclose what if original with Cummings, might be a new discovery, not an application, but an apparent process by which the invention may be used. For the first time, a method of forming a plaster cast, a plate of wax, a plaster mould or articulator, the packing in a metal flask, the method of vulcanizing, is given; and this is now claimed by the complainants' counsel to be the pretended invention, and not that disclosed in the original patent or either of the petitions or specifications, *nor claimed in either reissue.*

It appears from a mere inspection of the patent and the reissues that they are for different discoveries, and hence the reissues are void.

Carhart vs. Austin, 2 Fish, 551, 2.
Sickles vs. Evans, 2 Fish 438.
Batten vs. Taggart, 17 How., 83.
O'Reilley vs. Morse, 15 How., 112.
French vs. Rogers, 1 Fish, 139.
Goodyear vs. Providence Rubber Co., 2 Fish., 513.
Leroy vs. Tatham, 14 How., 175.
Burr vs. Duryea, 1 Wall., 575.
Case vs. Broom, 2 Wall., 238.
Carleton vs. Bokee, U. S. Cir. Ct. Md., 1871, per Giles, J.

FIFTH.—John A. Cummings was not the original or first inventor of the improvements claimed to be patented, either for the application of the material or the process.

(*a*). As to the conception of the use of hard rubber or similar material as a basis for dental plates, it was known and used as early as in the year

1845, by John Lovejoy, in New York (p. 132).

1845, by Dr. Behrend, in Liverpool (p. 132.)

In 1848, by Dr. Evans, Paris (p. 436. In 1851, Dr. Truman exhibited it at the World's Fair (p. 221), when he used gutta percha *vulcanized by sulphur*.

It was also published in the reports of the World's Fair.

Pages 221, 222.

In 1851, Charles Goodyear used it at Paris (p. 437), and again in 1855).

See testimony of Jordan, page 248.

Dr. Morey took a patent in France for it in 1852 (p. 436), and Goodyear in March, 1855.

See page 435—438.

Prior to the year 1852, it was used by Dr. Saunders, and was described in a dental journal of January of that year.

Page 298.

In 1853, Dr. Mallet sees a set of teeth of Goodyear's made in Paris, and with Bevin makes sets himself.

Page 295.

1850 and 1851, Dr. Robert Parsons, York, England, makes sets of teeth of gutta percha hardened.

Page 223.

J. F. Parsons, of Halifax, also; both of which are described in the American Dental Journal of January, 1852.

Page 223.

Eight months prior to this it was used in New England.

It is also described in Harris' Dental Dictionary of 1850.

Page 334.

Prior to this, and in 1848, Dr. Edwin T. Truman, of London (p. 174) had invented a process of making artificial teeth upon a basis of gutta percha, and took a patent for it, in which he describes substantially all the processes detailed in the reissues of the Cummings patent, except the vulcanizing by baking.

See Patent, p. 174.

In 1851, Mons. De La Barre, one of the oldest and most prominent dentists in Paris, read a treatise before the National Academy of Sciences, in which he described the same process which is published in Dingler's "Journal Polytechnic" vol. 122 (p. 239), quoted "Compte Rendu de Séances de L'Academie)

Page 222.

(*b.*) Cummings did not conceive this idea, nor did he ever discover any *process* by which to produce a plate of hard rubber upon which artificial teeth could be attached.

He first employed Bevin to do it, who commenced working for him in this matter after his return from Europe in September, 1854. At first they were trying to *cover metal plates* with rubber.

See Bill of Bevins to Cummings, Nov. 1852, V. 1, page 325.

Bevin had already taken a metal plate and teeth, and from it moulded a *black, hard rubber* plate and *teeth*, by the ordinary method of making vulcanized goods. This he showed to Dr. Mallett.

Page 298.

Then he and Mallett conceived the idea of combining a hard rubber plate with artificial teeth and gums.

Page 301.

Mallett's experiments were mainly taking the impression of the mouth, making the mould, *and setting up the teeth in it*, ready for the introduction of the rubber. The rubber insertion and vulcanization was Bevins.

Same page.

If there was anything novel in this *process*, it was the idea of Mallett, and not Cummings.

Mallett believed that he and Bevin were working together and in partnership, and was ignorant of the fact of Cummings using his plates, or of his having any interest in it.

Page 304.

They were experimenting together, and he was paying Bevin for his services by the day. Several sets he made were sent to Cummings by Bevin, and were probably those used in the Patent Office when Cummings applied for his Patent.

It further appears that Cummings *never* did learn how to make a plate under his own pretended invention.

Flagg, his partner from November, 1855, to July, 1860 (page 359), testifies that during that whole time not a single plate of hard rubber was made by him or Cummings, and that he only saw *one plate*, made by *he does not know whom.*

Page 358-363.

Wm. P. Leavitt, clerk for Cummings from 1850 to 1857, testifies that on *but one occasion* were any experiments made, and that by Bevin, and it a *failure;* that during the entire time he was with Cummings witness had sole control of the mechanical department, and every piece of dentistry from the office passed through his hands.

Page 275.

William A. McDonald was employed by Cummings in 1862, and Cummings was unable to instruct him *then* in the method of making hard rubber dental plates, and *employed a person to teach him*, and paid him for doing it.

Page 380.

The "experiments" referred to by all the witnesses as having been made were such as

were necessary in treating a material which was itself a novelty, and the properties of which, while *known* were not familiar.

Cummings never did become familiar with the qualities and necessary treatment of rubber which dentists generally did.

Bevin was not acquainted with the details of mechanical dentistry.

(*c.*) Robert Haering was the first one in the United States to make dental plates of hard rubber with artificial teeth attached.

Dr. Wheat shows that, in the Summer of 1855, Haering called on him and wanted him to assist him in obtaining a Patent; he was recommended by *Goodyear* before going to Europe (which was before the Summer of 1854); at this time he saw a set of teeth made by Haering, *which Bevin was wearing.* Haering at this time claimed he had made a set of teeth for his sister *several years* previous.

Page 129.

Robert Haering says he first made sets in 1851, for his sister and sister-in-law; afterwards for Bevin.

Page 140.

Maria Schweitzer corroborates this,

Page 134,

and also saw the teeth made for her sister-in-law, Caroline Haering.

Caroline Haering testifies to the two sets made for her, and that she wore the first set two years, when he made the second set, and finally Dr. Wheat made a third set.

Page 170.

Adolphus G. Haering saw his father make one of these sets; he knows the time, as it was when *Pierce and King* had just been nominated. *This was the Summer of* 1852. Witness thought it was 1851, but this fact proves it to have been 1852.

Page 153.

Haering *used white* porcelain teeth in this set, and hence this was not the *first* set made by him.

George W. Homan, a fellow-workman, saw Haering make them, and *in* 1851. It was when Homan first moved to Olive street, which was in 1851.

Page 166.

So that Haering as early as 1851 had discovered a way to mount artificial teeth and gums of porcelain on hard rubber plates *before* the *caveat* of Cummings to mount teeth on *rubber plates and gums* had been filed.

Haering, as early as in 1856, when applying for a Patent, shows a *knowledge* that he then had of a *method* by which the teeth were set in wax, are fitted to a plaster cast of the mouth, so arranged that when the wax is removed the teeth shall remain in position. When the plaster is set the wax is removed, and the rubber inserted; the mould closed,

placed in a steam oven, and heated to a temperature of 280° to 300° for six or eight hours, and vulcanized. He claims the application of vulcanite as a *new material* and a *new mode* to constructing a base for artificial teeth.

Page 95.

This *method*, it is plain, Cummings was ignorant of.

SIXTH.—The *process* detailed in the reissues was neither new, nor patentable.

(*a.*) It is not novel.

It was in use long prior to Cummings' pretended discovery.

In August, 1848, Dr. Truman, in his patent, described his method of obtaining the cast of the mouth in wax, to show the parts to be made up by the artificial gums and teeth; the plaster mould from such cast and the usual methods of making them, and alludes to them as being very old and well understood by the dental profession; he then states in detail his mode of filling the moulds with *hot* gutta percha, while soft, and then suffered it to cool into the shape of the mould.

See Patent, page 174.

It differs from Cummings' process merely in using *hot* gutta percha and suffering it to form in a mould when cool. Cummings in his combination put into the same mould *hot* vulcanite or hard rubber and then allow the

same to be hardened by baking (page 57); the sole difference of the two being the *after* baking by Cummings.

Hancock, in his patents in 1846, describes the packing into the moulds of the rubber of gutta percha and its baking or vulcanizing, exactly as shown in the reissues.

Page 200, 204, 212.

Dr. John B. Newbrough shows that the use of the wax or plaster cast to take the impression of the mouth, the plaster cast from this impression, the second mould or model in wax, in which teeth are inserted, has been known and in use since the knowledge of mechanical dentistry, and since gold plates were used, and to his own knowledge for twenty years, and was described in the journals long before that.

Page 51.

That "Cheoplastic" is a method of mounting artificial teeth upon an amalgum of tin, and was made by the precise process by which hard rubber dental plates are now made, except that the tin was poured or packed in and allowed to harden *without heat*, and that this was practised for over twenty years.

Page 54.

Dr. McIlroy describes the same method of using "Cheoplastic" as being in use from 1851 to 1855.

Page 133.

And Dr. Miles in 1854-5.

Page 137.

And complainants do not contradict this, knowing it to be true.

As then the whole process was old, and the only thing new was to use the old process for a new article of vulcanite by a well known process of moulding it, Cummings could not have and did not *invent anything.*

As this *process* or *method* was the only one by which hard rubber plates *could* be made, Dr. Evans, in 1847, Dr. Truman, in 1848 to 1851, Dr. Berend, in 1845, and Dr. Lovejoy, in 1845, must have employed it when severally making their plates of hard rubber or gutta percha with artificial teeth attached.

These facts being published in the journals, Cummings could have seen and read them, and if he understood the state of the art in his own profession would naturally have used this precise method, and that, too, without the exercise of any inventive faculty.

It appears that his ignorance prevented it, and he purchased from Mallett, or obtained from Haering through Bevin, the only plates he ever had, and used them in the Patent Office, hence in his specification he *details no mechanical contrivance* or *process* by which he accomplishes his result, and none appears before the reissues of 1865.

(*b.*) The "process" described in the reissues is not *patentable.*

It consists of nothing but moulding hard rubber plates with artificial teeth attached, in the precise method theretofore employed for gold plates, "Cheoplastic" and other processes, with the addition of using hard rubber vulcanized as directed in the Goodyear patent of May 6, 1851. Nothing therein detailed is new—nothing the subject of invention or a patent. The use of the well-known process of making metal plates, and coupled with the use of hard rubber, is not a *new combination, nor is it* claimed to be in the reissues, and cannot *now for the first* time be asserted by complainants.

No *combination* is *claimed* in the reissues, and therefore none is patented.

SEVENTH.—The Dental Vulcanite Company was a Corporation organized under the General Manufacturing Laws of the State of Massachusetts, and the Goodyear Vulcanite Company, the present complainant, is a corporation organized under the General Act of the State of New York; and neither of them, under these general acts of incorporation, have the power to do any thing except to *engage in the business* of manufacturing.

Neither of them have the power to hold these reissued patents except for the purpose of manufacturing under them. They cannot *sell licenses* to others to manufacture, nor can they enforce the payment of penalties for the infringement of the patents.

They were not incorporated for that purpose, and the attempted exercise is *ultra vires.*

(*a.*) As to the Dental Vulcanite Company, it was incorporated under the General Act of the State of Massachusetts, August 6, 1864.

The provisions of this General Manufacturing Act require that the *purpose* for which the corporation is organized, and the place where they purpose to manufacture, shall be *distinctly* and *definitely* set out in the certificate of corporation or association, and that it shall not use its capital nor divert its objects to any other purpose than as thus stated.

General Statutes, Chap. 61, § 2-5.

The law was the same prior to 1861,

Laws of 1851, Chap. 133, § 3,

so that no powers are given other than as detailed in their certificates, and *all* other powers are powers are expressly *excluded.*

This Company was organized August 6, 1864, with a capital of half a million dollars, *all* paid in by the assignment of this Patent except $12,500.

Page 376.

The certificate states that they have associated themselves to *manufacture* artificial gums and palates of vulcanite, and to *practise* and *use* the invention secured under Cummings' Patent *in Boston.*

Pages 120, 121.

To evade the law, they authorize a firm, "Flagg & Osgood" (owners of a quarter of the stock), to manufacture and sell hard rubber plates; and, *if* any one applied for plates, they offered to make them for them,

Page 396-408,

and *on this* they assume to be a manufacturing company; none of their capital stock being employed in this pretended manufacture, the real—only—business being to sell licenses to dentists.

This being a power which the Legislature has not granted to it, it cannot enforce against one who has not estopped himself from questioning the powers thus illegally claimed.

If it be admitted that parties, by solemnly contracting with a corporation, thereby estop themselves from denying its capacity to contract, certainly it cannot be claimed that the corporation can exceed its powers against one who always has denied its rights.

Brown vs. Winnisummett Co., 11 Allen, 331.

(*b.*) So, too, the present owner. The Goodyear Dental Vulcanite Company has no capacity to hold these Patents (except so far as may be required for themselves to manufacture under them), nor to sell rights or licenses to dentists to manufacture vulcanite dental plates, as the General Act of the State of New York is even more restrictive than that of the State of Massachusetts.

The Revised Statutes declare that no corporation shall possess or exercise *any* powers except such as are necessary to the exercise of the powers enumerated and given.

1 R. S. (Edmund's Edition), 557, § 3.

The General Manufacturing Act requires that the certificate shall state the object for which the company is formed, &c., and on being filed shall be incorporated *for the purpose of* carrying on any kind of *manufacturing*, mining, mechanical or chemical business.

Laws of 1848, Chap. 40, § 1.

Hence they are confined to the business of manufacturing. The company has not put in evidence its certificate of incorporation, hence the precise object is not shown; but the business of selling licenses to use a Patent certainly is not one those matters enumerated in the act.

But they must *affirmatively* show that they do possess the powers claimed; these assumed powers being in derogation of the common law powers of corporations, and a failure to do so would defeat an action brought by them.

Bard vs. Chamberlain, 3 Sand. Ch. 31.

This corporation received these Reissued Patents from Josiah Bacon, by assignment, January 7th, 1838.

Page 45.

No claim is made that the *present* company is engaged in manufacturing or in doing any other business than that of selling licenses to Dentists.

Corporations are the mere creatures of the law forming by them. They are created for specific purposes, and derive all their powers from their charters or general acts of incorporation.

Powers *not conferred on them by the creating powers* they do not possess, and are not conferred from the mere fact of incorporation.

Ridley vs. Plymouth Co., 2 Ex. 711.
5 H. L. Cas., 605.
" " 331.
Dartmouth College vs. Woodward, 4 Wheat, 578.
Perrine vs. Chesapeake & Co. R. R., 9 How., 172.
Pearce vs. Mad. & Ind. R. R., 21 " 442.
Hodges vs. Buffalo, 2 Denio, 110.
Curtiss vs. Leavitt, 15 N. Y., 64, 157, 209, 256.
Bissell vs. Mich. So. & N. J. R. R., 22 N. Y., 267.

EIGHTH.—As to infringement.

The appellant has used in his business, not the article vulcanite or hard rubber compounded by *not less* than four ounces of sulphur to the pound of rubber under the Letters Patent of Nelson Goodyear, of May 6th, 1851, but *iodized* or Newbrough rubber compounded under patent 73,917 (page 229th), in the manner described by Newbrough (pages 48 to 51.)

The Newbrough-Fagan Patent is for a new *product* as well as a new *combination*, and which was entirely unknown to Goodyear or to Cummings, and the use of it is entirely distinct from that described by Cummings.

The Goodyear & Newbrough Patents are entirely distinct, and neither infringes upon the other, hence Cummings patent which *confines* itself to the use of the Goodyear vulcan-

ite, does not prevent the use of iodite compounded differently from the other and *made into* dental plates by a *distinct* process from those of vulcanite.

In the Goodyear patent, sulphur is the *sole* hardening material, and this united in some way with the caoutchouc so as to produce vulcanite by baking *in steam*. In the Newbrough patent iodine is used and produces a hard substance by baking in *dry* heat; the whole process of manufacture of the two articles is different, and the qualities of each are entirely different. The Newbrough plate is formed by a new process and produces a new result. It is a new product.

There can be no such a thing as a *chemical* equivalent. It is a *new invention* if anything; in point of fact no evidence has been given that iodine is or can be the equivalent or substitute for sulphur.

Matthews vs. Skates, 1 Fish, 603.
Unger vs. Heath, 5 H. L. Ca., 505.

A patent for a combination of several ingredients would probably cover and embrace *known* equivalents of each of the ingredients, but it has never been claimed to cover *all future* discoveries *to be made*.

Goodyear vs. Providence Rubber Co., 2 Fish, 612.
Rich vs. Lippencott, " "

The decree should be reversed, and a decree rendered for the appellant.

JOHN A. FOSTER,
S. J. GLASSEY,
of Counsel.

page 189

3 Fisher.

Circuit Court of the United States,

MASSACHUSETTS DISTRICT.

IN EQUITY.

DENTAL VULCANITE COMPANY

vs.

ISAAC J. WETHERBEE.

DECISION OF MR. JUSTICE CLIFFORD

IN FAVOR OF COMPLAINANTS,

DELIVERED JUNE 14, 1866.

BOSTON:
EDWARD S. COOMBS AND COMPANY, PRINTERS,
21 SCHOOL STREET.
1866.

Circuit Court of the United States,

MASSACHUSETTS DISTRICT.

IN EQUITY.

DENTAL VULCANITE COMPANY

vs.

ISAAC J. WETHERBEE.

DECISION OF MR. JUSTICE CLIFFORD

IN FAVOR OF COMPLAINANTS,

DELIVERED JUNE 14, 1866.

BOSTON:
EDWARD S. COOMBS AND COMPANY, PRINTERS,
21 SCHOOL STREET.
1866.

DENTAL VULCANITE COMPANY

vs.

ISAAC J. WETHERBEE.

COMPLAINANTS alleged in the original bill of complaint that they were the assignees of the letters-patent therein described, and that the respondent, on the thirtieth day of July, 1864, at Boston, in this District, manufactured, used, and sold their patented improvement without their license or authority. Prayer of the original bill of complaint was for discovery, for an account, and for an injunction. Original patent was granted to John A. Cummings on the seventh day of June, 1864; and the record shows that on the thirtieth day of July following, it was duly assigned to the complainants. Having acquired the title to the letters-patent, the complainants, on the twenty-sixth day of October, 1864, filed their bill of complaint; and, on the fifth day of December following, the respondent appeared and filed his answer. Pending the suit, and subsequently to the filing of the answer, the letters-patent were twice surrendered and re-issued on account of a defective specification. First re-issue was granted to the inventor on his petition and not to his assignees, as it should have been; and on the return of the same to the Patent Office the error was corrected. Second re-issue was to correct a date erroneously given in the first, and was granted to the complainants at the request of the inventor and original patentee. Petition for the second surrender and re-issue also was signed by the original patentee and purports in

terms to surrender the original patent instead of the first re-issue. Date of the first re-issue is January 10, 1865, and the date of the second re-issue is March 21 in the same year. Effect of the respective surrenders and re-issues was to defeat the right of the complainants to recover upon the original bill of complaint. Pursuant to the usual practice in this district, they, on the first day of April, 1865, filed a supplemental bill of complaint, which is founded upon the second re-issued patent. Answer and replication were afterwards duly filed, and the cause was fully heard upon pleadings and proofs.

Certain preliminary objections have been made by the respondent to the right of the complainants to maintain the suit which will first be considered.

I. Respondent contends that the complainants are not a corporation as alleged in the bill of complaint. They claim to be a corporation legally organized under the law of the State Gen. Stat., chap. lxi., p. 341. Section one of that chapter provides, among other things, that "three or more persons, who shall have associated themselves together by articles of agreement in writing for the purpose of . . . carrying on any mechanical, mining, quarrying, or manufacturing business . . . and shall have complied with the provisions of this chapter, shall be and remain a corporation under any name indicating their corporate character assumed in their articles of agreement which is not previously in use by any other corporation or company." Under that provision, the persons claiming to constitute the corporation complainants associated themselves together, prior to the filing of the original bill of complaint, by articles of agreement in writing, and formed the corporation by the name assumed in the bill of complaint to manufacture and sell "artificial gums and palates of vulcanite or hard rubber, under letters-patent granted John A. Cummings,

dated June 7, 1864, and assigned to said corporation." No such defence was set up in the original answer of the respondent, but he gave notice on the second day of January, 1865, that he should insist in bar of the suit that the complainants were not a corporation legally organized under the laws of the State, and he repeated that allegation in his supplemental answer. Some of the objections taken to the proceedings were overruled at the hearing, and therefore will not be made the subject of remark. Principal objections which remain open are — 1. That the business of the company, as declared in the articles of association, is not a manufacturing business within the true intent and meaning of the provision to which reference has been made; and 2. That the company does not in point of fact manufacture the alleged improvement, nor carry on any manufacturing business. Strong doubts are entertained whether there is any merit in the objections, even if it be admitted that such a defence if valid may be pleaded in bar as well as in abatement. Doubtless the nature of the improvement is such that it is necessarily made to order; but it is difficult to see how that circumstance can divest the patented article of the character of a manufacture. Manufacturers often work to order, and it is not perceived that it can make any difference in respect to the question under consideration whether the article was made for sale, or was made to order, as in either case it is manufactured before it is actually sold. Licenses are granted by the complainants, as appears by the allegations in the bill of complaint; but there is also evidence in the case which shows that they have agents who manufacture the patented article. They complied in form with the requirements of the statute, and inasmuch as the authorities of the State have not called the validity of their organization in question, it cannot be admitted that a mere wrong-doer can set up such a defect, if it be one, as a justification of his wrongful acts. But it is not necessary to place the decision of the Court

upon either of those grounds, as it is clearly settled by the Supreme Court that such a defence must be pleaded in abatement, and that it cannot be pleaded in bar, nor be given in evidence under the general issue. Corporations may have the same remedies at law or in equity as natural persons, and the rule established by the Supreme Court is, that if the defendant plead the general issue in a suit brought by a corporation, it is an admission of the corporate existence of the plaintiffs, and dispenses with the necessity of any proof on their part to sustain that allegation. By pleading to the merits, said Judge Story, in the case of Conrad *vs.* the Atlantic Ins. Co. 1 Pet. 450, the defendant necessarily admitted the capacity of the plaintiffs to sue. If he intended to take that exception, it should have been done by a plea in abatement, and his omission to do so was a waiver of the objection. Kane *vs.* Paul, 14 Pet. 41; Childress *vs.* Emory, 8 Whea. 642. Reference was made in the argument to the fact that the respondent, on the second day of January, 1865, in the paper filed at that time, giving notice of additional matters of defence not specified in the original answers, states that he will insist in bar of the suit that the plaintiffs are not a corporation legally organized under the laws of the State; but the paper having been filed without leave to amend cannot be regarded as an amendment to the original answer. Looking at the objection in any point of view, we are of the opinion that it cannot be sustained.

II. Objection is also made by the respondent to the proceedings of the Patent Office on granting both the first and the second re-issued patents, and he insists that the errors were of such a character that the last re-issued patent is void. Recurring to the dates, it will be seen that the assignment to the complainants was prior to the surrender of the original patent; and the record shows that the instrument of assignment was on file in the Patent Office

when the application for the re-issue was presented. Fraud is not imputed, and there is no pretence of intentional error or concealment. Errors suggested are, 1. That the application for the first re-issue was signed by the original patentee; and, 2. That the Patent Office in the first instance actually granted the re-issue to the applicant. Whether the mistake was first discovered by the Patent Office or by the party named as patentee does not appear, but it does appear that the letters-patent were immediately returned to the commissioner, and that the mistake was corrected as a clerical error. Unless it could be corrected as a clerical error, it could not be corrected at all, as it was clearly not a case falling within the provision authorizing a surrender and re-issue. Rules of the Patent Office furnish a form of an application for the surrender of a patent; but the Act of Congress does not in terms require that it shall be in writing. Patents may doubtless be surrendered on petition or by delivery as the rules of the Patent Office may prescribe, and in the cases specified in the Act of Congress a new patent may be issued to the original inventor, or, in case of an assignment, to his assignees. Where the assignment covers the whole interest of the inventor, present and prospective, it is undoubtedly more regular that the application for the surrender should be made by the assignee; but, even in that case, it cannot be admitted that the re-issue is void, if the assignment was duly recorded in the Patent Office, and the application for the surrender and re-issue was made with the knowledge and consent of the assignee. Letters-patent must in all cases conform to the requirements in the Act of Congress; but where the re-issued patent is correct in form, and there is no proof of fraud, intentional error, or concealment, a mere wrong-doer cannot defend himself against the charge of infringement by proving that the proceedings which led to the re-issue were irregular, unless it be shown that the proceedings were contrary to law, or that the patent was granted to

the wrong party. Correction of the error in this case was made by the commissioner at the request of the assignor of the patent; and he stated in the same communication that the assignment to the complainants was on record in the Patent Office.

III. Second surrender was asked merely to correct an error of date in the first re-issue; and it is obvious that the suggestion of error was well founded, and that the correction requested was one proper to be made. Two errors also are suggested in the proceedings which led to the second re-issue: 1. That the application for the surrender of the patent was signed by the original inventor; and 2. That the patent described in the application for the surrender was the original patent, instead of the first re-issue, as it should have been. Evidently the first objection is without merit, as the application to surrender the patent referred to the assignment, and contained the request that the new patent might be issued to the complainants. Pursuant to that request, the re-issue was granted; and the complainants, having adopted the surrender and accepted the new patent, are estopped to deny either the authority of the applicant or that of the commissioner. Com. Dig. J. 1–10, Coke 67, *b;* Shep. Touch. 301–303. Complaint certainly cannot be made by the applicant because it was his own act; and it is equally clear that the government cannot be heard to complain, because there is but one patent in existence for the invention, and the commissioner had full knowledge of all the circumstances.

IV. Remaining preliminary objection is that the description of the patent in the application for the surrender was erroneous. Suppose that is so, still it is apparent that all the papers were before the commissioner, and that he had full knowledge of all the circumstances and of what the patentees desired to accomplish.

Averment of the answer is merely that the re-issues were not made according to law; but it is not alleged or proved that there is any error in the records of the Patent Office, except what appears in the application for the surrender. Statement in the patent is, that the first re-issue was surrendered and cancelled; and, in the absence of any proof to the contrary, the presumption of law is, that the statement as there made is correct, and that the surrender was made according to law and the rules of the Patent Office.

V. Coming to the merits of the case, it becomes necessary to ascertain the character of the invention, and the true construction of the patent. Present suit is founded upon the second re-issued patent. Claim of the patent is, "The plate of hard rubber or vulcanite, or its equivalent, for holding artificial teeth, or teeth and gums, substantially as described." The invention is designated in the patent as a new and useful improvement in artificial gums and palates; but it is described in the beginning of the specification as a new and useful improvement in plates for artificial teeth, which, perhaps, is the better general description. Adopting the usual order, the inventor, in the first place, points out the objections to and inconveniences in the old mode of attaching artificial teeth to a metallic plate, and of fitting the same to the roof of the mouth. They are, as stated, that the metal was expensive, and that the plate, being hard and unyielding, was apt to injure the mouth, and that its tendency was to impede mastication and obstruct articulation. He then proceeds to say that his invention consists in forming the plate, to which the teeth or teeth and gums are attached, of hard rubber or vulcanite, so called; and describes the hard rubber or vulcanite as an elastic material, possessing and retaining, when used in that way, sufficient rigidity for the purpose of mastication, and being pliable enough at the same time to yield a little to the motions of the mouth. Description is then given of

the manner of making the hard-rubber plates, from which it appears that impressions are taken of the mouth, or that part of it the plate is to fit, of wax or plaster, in the same manner as is usually practised in the construction of gold plates for artificial teeth. Superadded to that is also a description of the means employed in setting and securing the teeth, as also of the kinds of teeth which may be employed. They are set in place and adjusted to the proper distance and fullness in the same manner as practised in setting teeth in gold plates. But they are provided with pins projecting in such a manner that the rubber will close around them and hold them secure in position. When completed, the plaster mould, with the teeth set as described, is carefully filled with soft rubber, and the same is made secure in its position by placing another plaster mould over it, and while in that condition it is heated or baked in an oven or in some other suitable way. The statement of the patentee is, that the soft rubber or gum is to be compounded with sulphur, &c., in the manner prescribed in the hard-rubber patent, and is to be subjected to sufficient heat to vulcanize or harden it, as directed in that patent. Unless the soft rubber is colored when purchased from the owner of the hard-rubber patent, it is also to be colored in imitation of the natural gums by mixing it with vermilion or other suitable coloring matter while in the soft state. After the plate has been heated or baked sufficiently to convert it into hard rubber, the mould is removed and the plate is then polished for use. The claim of the patent conforms to the description of the invention as given in the specification; and it is not perceived that any form of words can render it more definite.

VI. Several defences are set up by the respondent upon the merits; but the one most pressed at the argument was, that the assignor of the complainants is not the original and first inventor of the improvement described in the patent. The assignees hold

the patent, and they have introduced it in evidence; and having done so, the presumption on that issue is in favor of the complainants. Letters-patent are granted by public authority, and when issued, and regular in form, the presumption is that the power was rightly exercised; and he who alleges the contrary must prove it. Considering the mass of testimony and documentary proofs upon this issue, it is deemed inexpedient to do much more than to state our conclusions. Neither party would be benefited by an attempt to remark upon all the proofs in the case, and it would necessarily extend the opinion to an unreasonable length. Suffice it to say, we have carefully examined the evidence, and, in view of all the facts and circumstances, are fully satisfied that the original patentee, in the contemplation of the Patent law, was the original and first inventor of the improvement described in that patent. Respondent contends that the improvement was made by F. A. Bevin, or that the latter was at least a joint inventor with the original patentee. But it is not possible to sustain the first branch of the proposition, because the evidence introduced for that purpose is not sufficient to change the burden of proof, as it fails to show that the person named ever did any thing before he was employed by the original patentee, more than try a single imperfect experiment. On the other hand it clearly appears that the original patentee had filed his caveat in the Patent Office before he had even made the acquaintance of the person supposed by the respondent to be the inventor of the improvement. Such a theory finds no satisfactory support in the proofs, and it is dismissed without further remark. Undoubtedly Bevin went into the employment of the original patentee in the fall of 1853, or early in 1854; but he went abroad in the spring of 1854, and did not return till the fall of that year. When he returned, he commenced, under the directions of the original patentee, the manufacture of hard-rubber plates. They entered into a written contract on the second day of April, 1855;

and the terms of that instrument show that both parties regarded the invention as belonging to the original patentee. By the terms of the instrument it appears that the original patentee had filed a caveat, preparatory to taking letters-patent, and that the other party had already rendered services in perfecting the invention. Substance of the agreement was, that Cummings should furnish all the pecuniary means, have the results, and that Bevin should make the experiments, and be entitled to one-third of the interest. But the whole instrument treats Cummings as the inventor and Bevin as the employee. The same conclusion is drawn from the correspondence in the case, which is quite too voluminous to be reproduced. All the conduct of Bevin speaks the same language, and that remark is especially true of his conduct when Cummings was about to apply for a patent. His certificates given at that time are quite decisive, not only that he did not regard himself as a prior inventor to the original patentee, but that he did not even claim or pretend to be a joint inventor as is supposed by the respondent. He never made any such claim in his lifetime, and no such claim has been made by his legal representatives since his decease. Our conclusion is that the defence on this point is not made out.

VII. The next objection to be noticed is, that the inventor abandoned his invention because his application for a patent, which was made April 12, 1855, was rejected Feb. 6, 1856, and because he did not appeal at all or make any new application until the twenty-fifth day of March, 1864. Strong doubts are entertained whether any new application was necessary; but if it was, it is believed to be well settled that the second application must be regarded as having been filed in aid of the first, on which the rejection took place. Godfrey *vs.* Eames, 1 Wall. 317.

Actual abandonment is not satisfactorily proved; and it is not

possible to hold that any use of the invention without the consent of the inventor, while his application for a patent was pending in the Patent Office, can defeat the operation of the letters-patent after they are duly granted. Such delays are sufficiently onerous to a meritorious inventor if his patent is allowed to have full operation after it is granted, but it would be very great injustice to hold that any delay which the inventor could not prevent should under any circumstances affect the validity of his patent.

VIII. Another objection is, that the second re-issued patent is not for the same invention as that described in the original specification. Comparing the two instruments, it is not perceived that there is any substantial difference between them in respect to any thing embraced in the invention. The directions are more specific in the re-issued patent, but there does not appear to be any such change in the description of the invention as will support the objection taken by the respondent.

IX. Passing over certain minor objections, it only remains to ascertain whether the charge of infringement is maintained. Charge of the bill of complaint is, that the respondent has manufactured, used, and sold, and still continues to manufacture, use, and sell, many artificial gums and palates embracing the improvement and invention described in the letters-patent of the complainants. Reference in the supplemental answer is to the original answer, and it is the conclusion of the Court that the latter, in legal contemplation, admits the charge of infringement.

Complainants are entitled to a Decree for an Account and for an Injunction.

CLIFFORD, J.

U. S. CIRCUIT COURT,

District of Connecticut,

ABNER G. BEVIN,

vs.

THE EAST HAMPTON BELL COMPANY.

In Equity.

September 19th, 1871.

Woodruff & Shipman, for

SHIPMAN, J.—This was a bill in equity, praying for an injunction and an account, and was founded upon a patent issued to the plaintiff, May 4th, 1869. The alleged invention is called in the patent, "An Improvement in Metallingic Furnaces." The device was a simple one, and need not be described here. It is sufficient to say that it required inventive thought to originate it, and that it is a useful improvement. That the plaintiff was the original and first inventor, may also be conceded. The defense, as set up in the defendant's answer, rests upon the following grounds:—

First, "That the invention was in public use, with the knowledge and consent of the inventor, for more than two years prior to his application for the said Letters Patent." *Second*, "That the defendant, since his application for said Letters Patent, and before the issue of the same, and between said application and the obtaining of said Letters Patent, knowingly permitted his alleged invention to become public property, and abandoned the same to the public."

There is very little dispute between the parties about the facts. In January, 1852, the plaintiff applied for a patent, and in April, of the same year, his application was rejected. From this rejection, no appeal was taken, or re-examination applied for. In May, next following, the plaintiff took his application and all the papers connected with it, except one drawing, from the Patent Office; but no formal withdrawal appears to have been made. The papers thus withdrawn from the office, were never returned. From May 28, 1852, to April 28, 1862, the plaintiff had no communication with the Patent Office, and the only evidence which that office contained during these ten years, of his alleged invention, was the drawing and the entries on the file wrapper, of the date of filing the petition and other papers, the rejection of the application, and the delivery of the papers on the order of the plaintiff, to his brother, May 28, 1852.

At the time the application was rejected, in April, 1852, the office referred the plaintiff to "Wyman on Ventilation," as containing evidence that his invention had been anticipated and ante-dated. The plaintiff in his testimony, states what he subsequently did, in reference to securing a patent under this application as follows:

"I consulted Mr. Barnes," (his attorney, through whom he had made his application). "Mr. Barnes said to me, "that I had paid in thirty dollars in gold that I could, if I wished to abandon it, draw back twenty dollars from the "Government, but his advice was to let it be and think of it, and perhaps I might think it best to take it up some other "time, and I might see some others, perhaps some one in Washington, who would be able to go and explain the "matter, and see more particularly about the reason; and in the course of two or three years, or a year or two, my "brother saw Mr. Truman Smith, a Member of Congres. Mr. Smith said he would undertake to obtain the rejected "patent; but he thought I had better make some little alterations, and in looking at the thing, I did not see how I "could, and I never did make any alterations, and so it run along till 1862. I think it was when I became acquainted "with Munn & Co. of New York, who said they would undertake to obtain it for me, and made application."

"The patent was rejected (application of 1852) because it was supposed to be anticipated by 'Wyman on Ventila- "tion.' Mr. Barnes said, that he had never seen the book, and could not find it in Middletown, and thought "that perhaps I might find it in Hartford or New Haven. I could not find it in Hartford, and I went to New Haven, "probably in the course of a year or so after the rejection. I consulted Prof. Olmstead of Yale College. He said "(after looking at the book) that he did not think it ought to have been rejected on that account."

No other or further steps were taken by the plaintiff, or by any one on his behalf, towards obtaining a patent for his invention till April, 1862. In the meantime the plaintiff, who resided in the village of East Hampton, Connecticut, where most of the sleigh bells used in this country were and still are made, erected in 1852, a furnace embodying his invention. The same year, Bugbee & Veary erected one, and in 1853, another. In 1853, one was built by J. S. Hall & Co. In 1856, the defendant's built theirs. In 1856, 1857 and 1860, three others were erected. All these furnaces embraced the alleged invention of the plaintiff, were situated in the village where he constantly resided, and have been openly in use down to the present time, in the same business as that in which the plaintiff has been engaged. The fact that these furnaces were all erected in the same place as that described in the plaintiff's patent, and used for the same purpose, was known to him from the time each was built, down to the date of his patent in 1869. During all this time the plaintiff made no objection to this open and continued use of his invention by his neighbors and competitors in business, with all of whom he appears to have been on friendly terms.

It is true he gave them no express permission, the only reference made to the subject, so far as the evidence discloses, are those testified to by the plaintiff. He says: "I don't know as I ever objected. Mr Abell, (of the East "Hampton Bell Co.,) came to me when they were about to build theirs, and asked if he could see our furnace and "chimney. I told him he could, but I could give him no license to build one like it, for I had applied for a patent "and might some time obtain it. About the same time, J. G. Hinckley, (who had constructed the plaintiff's,) was "about to build one for J. S. Hall & Co., and he came to see me, and said he had heard something about my applying "for a patent. I told him I had, and could give him no license to build one."

Hinckley also testified that he built many of the chimneys already referred to, and that he had conversations with the plaintiff about them on various occasions, but that he never asked his permission to build any of them. This embraces the whole history of this invention, and the dealings of the plaintiff and others with it, down to April, 1862, when he filed another application for a patent.

In April, 1862, the plaintiff filed the new application, paying the fee of fifteen dollars, as prescribed by the Act of 1861, then in force, that Act requiring that sum to be paid on filing an original application. In this new application no reference was made to that of 1852, nor to the payment of the fee required by the former Act, nor to any circumstances connected with it. Indeed the fact that any prior application had been made seems to have been studiously ignored. This application of 1862 was filed April 28th, and rejected May 10th of the same year. The specification and one drawing which had been used on that occasion appear to have been taken from the office, and were returned by the plaintiff's agents, Munn & Co., March 17, 1863. No further communication with the office was had by the plaintiff or his agents till April 5, 1869, when a re-examination was applied for.

In regard to the course of the plaintiff after the rejection of May, 1862, he testifies as follows: "After that I "went to Washington myself, and saw Mr. Smith, then there. He was not a Member of Congress at that time. He "thought it would cost considerable, and I concluded that I would think of it and see what the prospect was of its "value, and I neglected to employ him or any one else to make further application until 1868, I think it was (it was, "in fact, March, 1869,) when I employed Theodore G. Ellis, and he obtained the patent in controversy."

During the period which elapsed between the rejection of the application in May, 1862, and the application for a re-examination in 1869, four or five other furnaces were erected in the same village, all embodying the plaintiff's invention. They were all built, and put into use with the knowledge of the plaintiff, and continued in use without objection on his part, till his patent was finally issued.

As to the means employed by the plaintiff, to prevent his invention from being known and used, between 1852 and 1869, he says: "The first five or six years after I built this chimney, I put up a notice on the door, 'No admittance without

"permission,' but of course, all the workmen knew it, and I think it wore out in five or six years; and that was the "only measure I took to keep people from coming into the shop and looking around."

The plaintiff never withdrew the twenty dollars paid to the Patent Office, at the time of his first application. He also testified *that he never intended to withdraw that application, or abandon his invention.* There is some evidence also, that during the erection and use of the chimneys referred to, they were sometimes spoken of, as "Bevin's Chimneys." We have thus given in detail, the whole evidence which the plaintiff has offered to meet the issues "of more than two years" use, before the application of 1862, and of abandonment after that, and before the Patent issued.

There is no evidence that we deem satisfactory, which would warrant us in concluding that these defendants knew, or supposed that the plaintiff claimed this form of furnace as his exclusive property, or that he intended to secure a patent therefor, until near the time when the patent was granted. Even after this suit was commenced, and down to the time of filing the answer, they were ignorant of the application of 1852, as well they might be, for the application of 1862, purports on its face to be an original and independent one, and there was nothing in the proceedings of the Patent Office or the plaintiff, in connection with that application, which hinted at a prior one. The drawing to which the new specification referred was not the old one, but a new and different one. And in the oath of the plaintiff made on the 26th day of March, 1869, and filed in support of the re-examination then asked for, he refers to his invention, as one for which he made application for Letters Patent of the United States, on or about the 28th day of April, 1862, and which was *once* rejected, May 10th, 1862. In the application on his behalf by his attorneys for a re-examination, dated April 5th, 1869, they refer to his rejected application and state: "The *first* rejection was dated May 10th, 1862." Indeed, so completely was the application of 1852 ignored in all these proceedings, that it would be difficult for us to repress the suspicion that concealment of that fact was intended, if there existed any adequate motive for such a course. The first question which obviously arises on these facts, is whether the plaintiff must be deemed to have abandoned his application of 1852. His testimony on the trial, that he never did intend to abandon it, is entitled to very little consideration, in view of his acts. His undisputed acts were certainly very cogent evidence of abandonment. He withdrew his application and all the papers connected with it from the office, May 28th, 1852, and never from that day to this furnished the office with any evidence whatever that he intended to pursue that application. It is true that he made no technical withdrawal, but he took away all the papers except one drawing, and never returned them, or made any allusion to them in his subsequent transactions with the office. The only evidence of his intention or invention which the Patent Office contained for ten years, was a single drawing which had been filed in support of an application soon rejected; and which had been left behind when all the other papers were withdrawn. In the meantime, his invention went into open and notorious use in his own neigborhood and under his own eyes, and so continued for ten years without one word of precaution or remonstrance on his part, either communicated to the public directly, or through the Patent Office constructively. His remarks to one or two persons, in casual conversation, that he had applied for a patent, and might some day obtain one, and therefore could give no license to use his invention, is of little importance in view of the other facts in the case. No one asked his permission or license. He forbid no one the use of his alleged invention. His notice on the door of his factory, that no one could enter without permission, is of still less consequence as evidence of his intention to pursue his claim for a patent. Such notices are common on the doors of manufactories. They are as often put up to keep out idlers as to conceal unpatented inventions. Besides, this notice was effaced by time long before he renewed his application, and if its presence on his door, while it lasted, was evidence of his intention to obtain a patent for something within, its subsequent absence for years was evidence that he had abandoned that intention. But while it was there it had no effect to conceal the invention, or notify the public against its use, for it was in daily and public operation throughout the village. During all this time the plaintiff took no steps to secure a patent. He knew the ground on which the Office rejected his application, and ascertained from Prof. Olmstead, that, in the opinion of the latter, the reason given by the Office for its rejection was not sound. This was within a year or two after the rejection of May, 1852. Here the matter slept. No fact is given in evidence, nor is any reason suggested, by which we can account for the plaintiff's long continued inaction, if he intended to pursue his claim. His device was a simple one. His application had been rejected for a simple reason. No considerable expense or trouble was required to endeavor to revise and reverse the decision of the Office. The common plea of poverty is not set up. The plaintiff was, during all these ten years, prosecuting a successful business. This is clearly inferrable from the fact, that establishments of the same character as his were going into operation every year, and are still pursuing the same business. The plaintiff was misled by no suggestion of discouragement or difficulty in his path. The remark of Mr. Smith that it "would cost considerable" was not made till after the rejection of 1862, and if it had been, there is no pretense that the plaintiff was not able to defray the necessary cost of any legitimate effort to secure a patent. In view of all the evidence on this point, it is impossible to resist the conclusion that the plaintiff wholly abandoned his first application, gave up all idea of obtaining a patent under it, and for that reason permitted it to go into unmolested public use. But the plaintiff insists that the fact that he filed an application in 1852 is conclusive evidence in his favor, and cites in support of this claim the case of Adams *v.* Jones (1 Fisher's Pat. Cases, 527–530). In that case Mr. Justice Grier remarked: "By application filed in the Patent Office, the inventor makes a full disclosure of his

invention, and gives the public notice of his claim for a patent. It is conclusive evidence that he does not intend to abandon it to the public. The delys afterwards interposed, either by the mistakes of the public office or the delays of courts, when gross laches cannot be imputed to the applicant, cannot affect his right." With this doctrine, in its application to the facts of that case we have no controversy. Adams filed his application in 1850, but did not receive his patent till 1857. There is no sugestion that he took his papers, including his application, from the Patent Office, and never returned them, thus withdrawing from the public the disclosure he had made of his invention, and all the evidence of its character except a drawing from which alone no one could tell precisely, or substantially, what he claimed. There does not appear to have been any voluntary delay on part of the applicant. On the contrary, he not only did not withdraw his application, but "continued to insist on his right to a patent." The delay in prosecuting his appeal to a hearing "was not in consequence of any laches of the complainant, but of the inability of the "aged Chief Justice to attend to the business of his office." In applying the language of courts attention must be paid to the facts with which they are dealing. This is of especial importance when citing their opinion in patent cases. When it was said by the Court in the case above cited, "that by an application filed in the Patent Office the inventor makes a full disclosure of his invention, gives public notice of his claim for a patent: and that this is conclusive evidence that he does not intend to abandon it to the public," it must be understood as referring to an application remaining on file, and prosecuted with at least some diligence, unless prevented by some cause other than that of the applicant's voluntary omission to move in the matter. An application for a patent can disclose nothing to the public, nor give the public notice of any definite intention of the inventor, while that application and the most important papers in which the invention is described are not in the Patent Office, but in the inventor's pocket.

The remarks of the Court in that case which immediately follow those already cited, show that the opinion will bear no such construction as that sought to be put upon it by the present plaintiff. "The statute," Mr. Justice Grier adds, "forfeits the right of an inventor to a patent only when the invention has been in public use more than two "years before the application. A man might justly be treated as having abandoned his application if it be not prose- "cuted with reasonable diligence. But involuntary delays not caused by the laches of the applicant, should not "work a forfeiture of his rights. In this case the complainant did not commence the manufacture of his improved "lock till some time after his application was on file. The delay was not in consequence of his laches, ; and within "a reasonable time after the decision of the Court as to the extent of his invention, a patent was granted for that por- "tion of it to which he was clearly entitled. Here is no abandonment either by the letter or the spirit of the statute, "but a continued claim amid difficulties arising from the obtuseness of officers, or accidental but unavoidable delay, "of public tribunals."

In the case before us, no part of this long delay of ten years is chargeable to anybody except the plaintiff himself, unless it be the "obtuseness of the officers" who rejected his application in 1852. It certainly did not require ten years deliberation on part of the plaintiff for him to determine whether he would even attempt to overcome that "obtuseness." This long delay he does not pretend to excuse. It was under the circumstances, not only not reasonable diligence, but it was no diligence at all. It was not only laches, but very gross laches.

The case of Adams *v.* Edwards, (1, Fisher's Pat. cases, 1) also cited by the plaintiff, has no special bearing on the present controversy. The charge of Mr. Justice Woodbury, conceded that an application might be abandoned, but whether it had been in that case, was one question submitted to the jury. But though in that case, the patent was not granted till seven years after the first application was made, the original application was renewed, amended, and persisted in, until it was finally granted. The same patent was involved in the case of Rich *v.* Lippincott, (2, Fisher's Pat. cases, 1) cited by the plaintiff.

But the plaintiff relies particularly on the case of the Dental Vulcanite Co. *v.* Wetherbee, (2 Clifford, R. 555, S. C. 3 Fisher, Pat. Cas., 87.) In that case the facts are given by the Reporter, as follows: "It appeared that John A. "Cummings first made application for a patent for his invention in 1855, and that the same was after three examina- "tions finally rejected, upon appeal by the Commissioner of Patents in 1856. The application was not further ap- "pealed, and was not renewed till March 25th, 1864, when a new application was filed, upon which the patent issued. "In the interval between the filing of the original application and that of 1864, the invention had gone into use to a "considerable extent, with the knowledge and consent of the applicant proved thereto, and it also appeared that during "the same interval, the inventor had made certain assignments of interests in the invention. Certain letters of the "patentee and other evidence were introduced, tending to show that the inventor had not relinquished his design of "obtaining a patent at any time between the date of the original application and the final allowance of the patent, "(2 Cliff. R., 557.") The following are the remarks of Mr. Justice Clifford on this point: "The next objection to be "noticed is, that the inventor abandoned his invention because his application for a patent which was made April "12th, 1855, was rejected February 6th, 1856, and because he did not appeal at all, or make any new application "until March 25th, 1864. Strong doubts are entertained whether any new application was necessary, but if it was, it is "believed to be well settled, that a second application must be regarded as having been filed in aid of the first, on "which the rejection took place, (Godfrey *v.* Eames, 1 Wall. S. C., 317.)"

"Actual abandonment is not satisfactorily proved, and it is not possible to hold that any use of the invention, with "out the consent of the inventor while his application for a patent was pend g in the Patent office, can defeat the "operation of Letters Patent after theyare duly granted. Such delays are sufficently onerous to a meritorious inven- "tor, if his patent is allowed to have full operation after it is granted, but it ould be a very great injustice to hold "that any delay which the inventor could not prevent, should under any circumstances affect the validity of his patent."

The plaintiff insists that the doctrine of that case is applicable to the one ow before us, and fully supports the validity of his patent. We have therefore examined it with some care. The c rt evidently considered two questions as arising under that branch of the case. First, The relation of the last applic ion to the first; and second, That of actual abandonment of the invention while the application wsa pending. Th first, if we correctly understand the remarks of the learned judge, seem to have been regarded as a question of law, hich had been conclusively settled by the Supreme Court, in Godfrey *v.* Eames. "Strong doubts are entertained whther any new application was neces- "sary; but if it was, it is believed to be well settled that the second applicatio must be regarded as having been "filed in aid of the first, on which the rejection took place. Godfrey *v.* Eames 1 Wall, S. C. 317.")

And it is true that the court in the latter case say that, "In our judgment if a party choose to withdraw his "application for a patent and pay the forfeit, intending at the time of such withdrawal to file a new petition, and he "accordingly do so, the two petitions are to be considered as parts of the same ransaction, both as constituting one "continuous application within the meaning of the law."

But this language of the Court must be read in the light of the facts of the case before them. These facts were that "Godfrey on the 31st of Jannary, 1855, filed an application for a patent for boot trees. This application, the Commissioner, on the 17th day of May, 1855, rejected for want of novelty. On the 24th of April, 1857, within the time required by the rules, Godfrey submitted his case again. The old application was withdrawn, and a new one filed *simultaneously;* the withdrawal fee of $20 going to make part of the application fee of $30, and not in fact being received by the applicant." On these facts the Court might well regard the two applications as connected together by an unbroken continuity. That they did not intend to decide that every subsequent application for a patent should be deemed in judgement of law to relate back to the first, whatever the interval of time or the intervening acts of the applicant between them, is clear, for they immediately add "The question of the continuity of the application *should have been* "*submitted to the jury.* In directing them to return a verdict for the defendant, we think the learned judge who tried "the cause in the court below, committed an error." On that ground, a new trial was ordered. On the second question, that of abandonment of the invention, in the Dental Vulcanite Co. *v.* Wetherbee, the opinion as already cited, remarks: "actual abandonment is not satisfactorily proved; and it is not possible to hold that any use of the inven- "tion *without the consent of the inventor*, while his application was pending in the Patent Office, can defeat the operation "of the Letters Patent after they are duly granted. Such delays are sufficiently onerous to a meritorious inventor, if "his patent is allowed to have full operation after it is granted; but it would be very great injustice to hold, that "any delay which the inventor could not prevent, should, under any circumstances, affect the validity of his patent." We conclude that the facts which the learned Judge had in view when he made these remarks, have been inaccurately reported. They speak of the knowledge and consent of the inventor to the use as having been proved; while the opinions refers to a use without the consent of the inventor. The onerous delays referred to, in the opinion we infer to be the delays interposed by the action of the patent office. Those are the only delays which "the inventor could not prevent," or at least provide against, by notice to those whom he knew to be using his invention. Bacon *v* Hills, (3, Fisher 134); Gates *v* Benson. (Decisions of Commissioner of Patents 1870, Carter, Ch. J.) Now, in the case before us, as we have already stated, we are constrained by the indisputed facts, to hold, that the plaintiff abandoned his first application. In coming to this conclusion, we have not overlooked the cases cited by the defendant from 2, Blatch, R; Pitts *v* Hall, 229, and McCormick *v* Seymour, 240. But in neither of those cases was this precise question before the Court. In each the point was whether the inventor had abandoned his invention to the public, within the two years next proceeding his application for a patent. As Mr. Justice Nelson well remarked in his charge to the jury, in Pitts *v.* Hall. "An abandonment *may* occur within two years and at any time "down to the procurement of the patent. The mere use, or sale, however of a machine within the two years, will "not alone, or of itself, work an abandonment. There must be something more, because the 7th Section of the Act of "1839, permits the sale, or use, by the patentee at any time within the two years before his application, without "invalidating his right." And again in McCormick vs. Seymour, the same learned judge informed the jury that "the "mere fact of making and selling an improvement, or invention, or of putting it into public use, at any time within the "two years before the application for a patent, is not, of itself, an abandonment of the invention to the public. The "right thus to use his invention before the granting of a patent, is a right conferred on the inventor by the Act "of 1839." In both the cases cited, he charged that when a defendant relies on an alleged abandonment of the invention to the public within the two years next preceeding the application for a patent, he should be required to prove it beyond reasonable doubt or hesitation. That is undoubtedly a sound rule. But the question now before us is, whether Bevin abandoned his *application*, made in 1852. On this question we think the proof ample and conclusive.

He filed his application, it was acted on without delay, and rejected for a simple and intelligible reason. Instead of taking any steps to reverse the action of the office, he withdrew all his papers, including the application itself, except a single drawing, and then, for ten years, permitted his invention to go into notorious public use. During all this time the records of the Patent Office contained no evidence whatever of the character of his invention, or of his claims in regard to it. By inspecting the drawing left behind, nobody could tell what portion of the chimney or furnace was claimed as new, or of what the inventor supposed his discovery to consist.

But we are told that the new application of 1862 must, in judgment of law, relate back to the first one. We have already shown that the continuity of these applications is, according to the doctrine of Godfrey *v.* Eames, a question of fact, and not of law. The evidence does not establish that continuity either in fact or intent. The original application, although not formally and technically, was practically withdrawn. The papers were taken from the office in 1852, and never returned. The application of 1862 made no reference to that of 1852, not even to the old drawing. When the application of 1862 was filed, there was practically no prior application pending to which it could relate back. It follows that as the application of 1852 was abandoned, and there was no continuity between that and the one filed in 1862, the latter must be deemed the original application upon which alone the patent issued; and as the plaintiff failed to make that application until after his invention had been in public use, with his permission, for nearly ten years, his patent is void.

This conclusion renders it unnecessary that we should consider the other question raised by the answer, whether the invention was abandoned after 1862.

Let a decree be entered dismissing the bill, with costs.

[illegible] Curtis —

11 Howard 265

15. How. 62. 111 —

12 St p 248. Sec 12

2 Bleatchford 256

Horwitz —

203 - 165 - 147 -

182 - 153 -

1851 - 2. Rehov P Off.

page 498

Curtis on Patents. 245

Cunsten Browne [illegible] 8